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First record of *Theridion melanostictum* O.P.-Cambridge, 1876 (Araneae: Theridiidae) from India

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Abstract

The spider *Theridion melanostictum* O.P.-Cambridge, 1876 is first time reported to Indian araneo-fauna. The present paper deals with the description of the newly recorded species from Lonar Crater Sanctuary, India. The morphological features and identification characters are presented.

Keywords: Taxonomy, New record, *Theridion*, Theridiidae, Lonar Crater Sanctuary, India.

Introduction

The spider family Theridiidae, commonly known as cobweb or comb-footed spiders, construct irregular space webs with threads radiating different directions. It is rank one of the most species-rich families of spiders currently represented by 2421 species belonging to 121 genera worldwide (World Spider Catalog, 2015). As far as in India 76 species belonging to 26 genera reported (Keswani *et al.*, 2012). The theridiid spider genus *Theridion* Walckenaer, 1805 is a cosmopolitan, about 590 species have been described in world till now (World Spider Catalog, 2015). So far the spider family Theridiidae has been poorly studied in India and until now only 76 species are reported (Keswani *et. al.*, 2012).

"*Theridion melanostictum* though ornamented conspicuously, may be best distinguished from other *Theridion* species by genitalic structures. The form of the palpal sclerites of the male and the rather elaborate course of the spermathecal ducts of the female are diagnostic characters." (Levy & Amitai, 1982). *Theridion* species are found throughout the world, being most abundant in the warmer area and tropics (Levy, 1998). Until now, *Theridion melanostictum* O.P.-Cambridge, 1876 has been recorded from

Mediterranean, Aldabra, Seychelles, China, Japan, Polynesia, USA, Canada and Hispaniola (World Spider Catalog, 2015).

The Lonar Crater Sanctuary (19°58'N, 76°30'E) is the third largest saltwater lake in the world. It is formed 50-60 million years ago. This was created by meteoritic impact on basalt rock. *Theridion melanostictum* O.P.-Cambridge, 1876 is described for first time from India. This study will enhance existing diversity and systematics of *T. melanostictum* will also provide reference data for future researches.

Material and Methods

The present study is based on material collected in 2012 and 2014 from Lonar Crater Sanctuary. The specimens were taken through standard quadrate method 20 x 20 meter and active search method on grass layer near to water. All the specimens were preserved in 70% ethanol. Male palps were dissected then cleared in 10% aqueous KOH solution. The basic identification of specimen was observed by using Olympus SZ61 mounted with slides SLI 1500 camera. The specimens are currently deposited in Arachnology Research Centre of J.D.P.S.M, Daryapur. All measurements are in millimetres (mm).

Abbreviations used: ALE = anterior lateral eyes, AME = anterior median eyes, PLE = posterior lateral eyes, PME = posterior median eyes.

Results

Theridion melanostictum O.P.-Cambridge 1876 (Figs. 1-11)

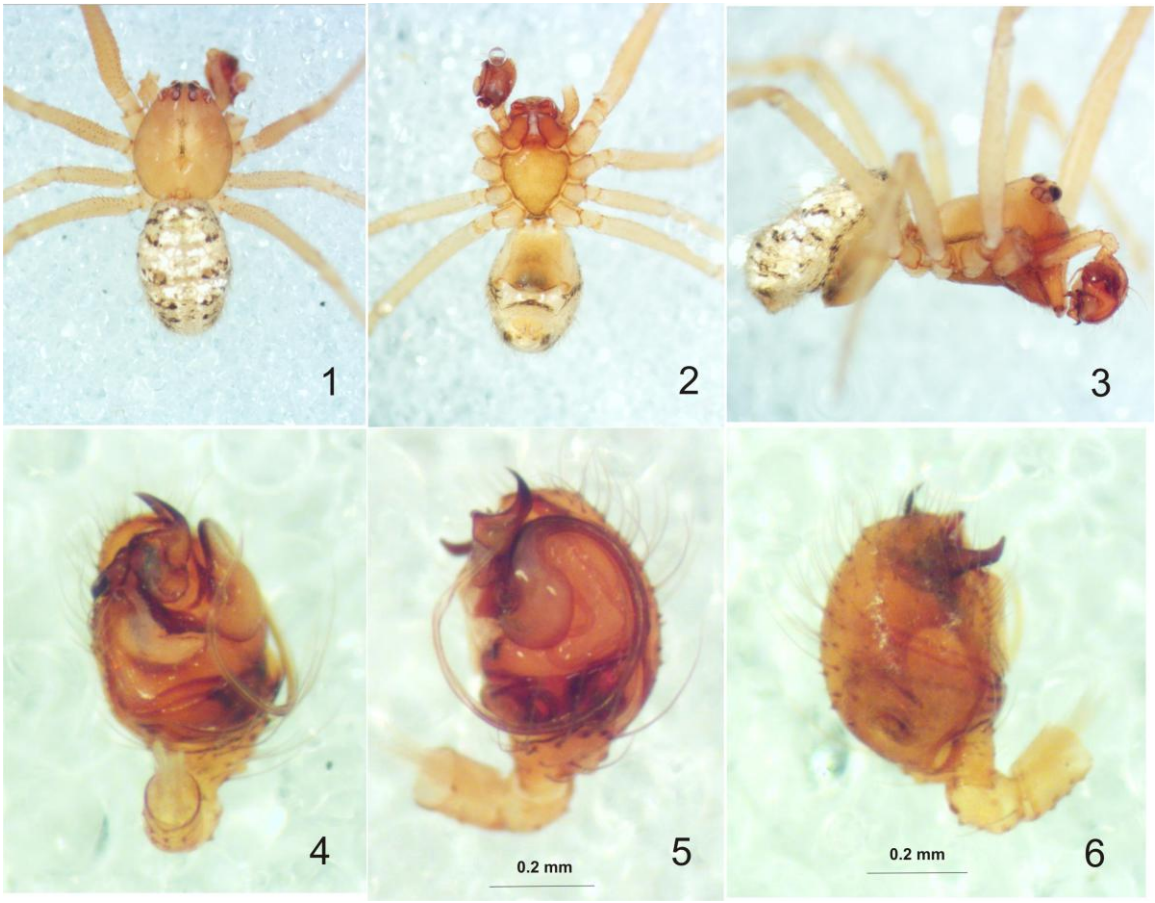
Material Examined: 2♂♂; India, (M.S.), Buldhana district, Lonar Crater Sanctuary, (19°58'36"N, 76°30'30"E), 12-12-2012, leg S.V.Manthen.

Description of male: Total length 2.51; Cephalothorax 1.16 long, 1.00 wide; Abdomen 1.27 long, 0.93 wide. Clypeus height 0.27.

Cephalothorax: Eyes in two rows, all eyes approximately equal in size, PME only slightly larger than other eyes. ALE smallest. Anterior eye row straight when viewed from in front, posterior eye row straight from above, lateral eyes touching. Diameter of eyes: AME 0.09, PME 0.10, PLE 0.09 and ALE 0.08. Clypeus projecting. Chelicerae yellowish brown, cheliceral teeth absent. Carapace slightly longer than wide, light brown with, indistinct, mid-dorsal band and dark margins. Maxillae and labium yellowish-brown, Sternum longer than wide, yellowish-brown; the posterior tip of the sternum usually protruding bluntly between coxae of fourth legs. Legs long and slender, yellowish-brown with dark marking near articulation. First pair of legs is longest and third pair is shortest. Leg formula: I-II-IV-III (Table 1).

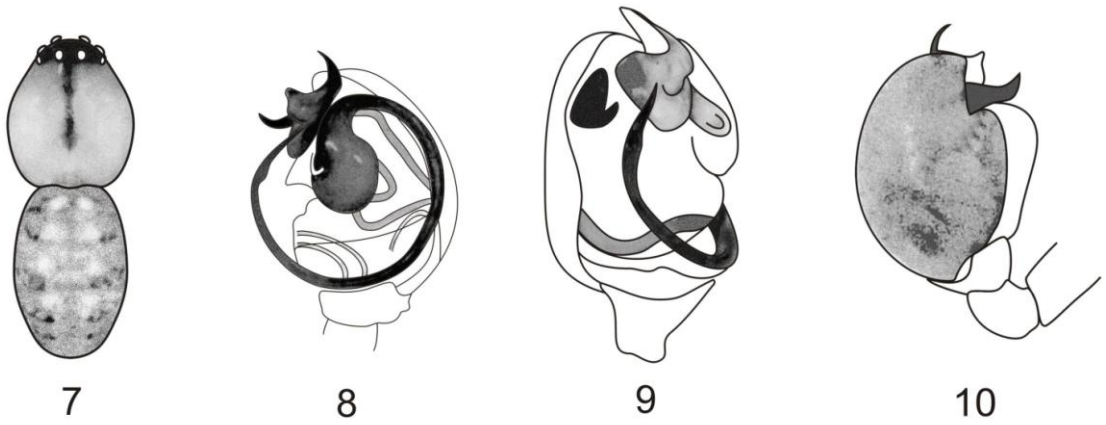
Abdomen oblong, pale yellow mottled with white, black and greenish spots, covered with micro setae. Venter traversed by expanding in middle, greenish brown to black patch continuing as a dark belt on the sides dorsally; presence of one black spot in front of spinnerets and two black, oblique marking, behind spinnerets; it is also grey and markedly swollen anteriorly.

Palps relatively large, radix with a distinctive finger-like bulged on middle of medial surface; Conductor beak-like; Embolus thread-like and coiled, rising distally rounded form, embolar basal division; embolar duct encircles most of the bulb, almost touching tibia proximally; pointed median apophysis almost hidden by circular extension of conductor; elaborate embolus tip with sclerotic tapering above cymbium (Figs. 4-6, 8-10).



Figs. 1-6. *Theridion melanostictum* O.P.-Cambridge 1876 ♂. 1-3. Habitus. 1. dorsal, 2. ventral, 3. lateral views. 4-6. Palpal organ. 4. mesal, 5. retrolateral, 6. dorsal views.

Distribution: Mediterranean, Aldabra, Seychelles, China, Japan, Polynesia, USA, Canada, Hispaniola (World Spider Catalog, 2015) and Lonar Crater Sanctuary, District-Buldhana (M.S.), India (New record).



Figs. 7-10. *Theridion melanostictum* O.P.-Cambridge 1876 ♂. 7. Habitus, dorsal view. 8-10. Palpal organ. 8. retrolateral, 9. mesal, 10. dorsal views.

Table 1. Measurements of the legs of *Theridion melanostictum* O.P.-Cambridge, 1876 ♂.

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.33	0.31	2.41	2.33	0.78	8.16
II	1.47	0.33	1.23	1.24	0.58	4.85
III	0.78	0.25	0.61	0.76	0.39	2.79
IV	1.35	0.36	1.16	1.26	0.52	4.65

Discussion: The present investigation shows that the description of morphometric, measurements and other features are distinct from other common *Theridion* species in India. The little differences occur in morphological characters like colour, and size are generally similar to the description of O.P.-Cambridge (1876). Colouration appears darker in alive spiders (Fig. 11).

Fig. 11. *Theridion melanostictum* O.P.-Cambridge 1876 ♂. General habitus.

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The first record of *Mermessus fradeorum* (Berland, 1932) (Araneae: Linyphiidae) in Saudi Arabia

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Abstract

Mermessus fradeorum (Berland, 1932) of family Linyphiidae is recorded from Saudi Arabia for the first time.

Keywords: Spiders, Linyphiidae, *Mermessus fradeorum*, Hail, Taif, Saudi Arabia.

Introduction

Family Linyphiidae Blackwall, 1859 is the second greatest spider family (4547 species) after Family Salticidae Blackwall, 1841 (5813) and the first one in number of genera (601). Genus *Mermessus* O.P.-Cambridge, 1899 includes 81 species, mainly recorded from North and Central America, and northern South America with the exception of six species recorded from the Old World too. *Mermessus fradeorum* (Berland, 1932) is a cosmopolitan species (World spider Catalog, 2015).

Berland (1932) described both the male and the female of *Parerigone fradeorum* as a new species from Azores, Portugal and proposed a generic replacement name in the same year to be *Anerigone fradeorum*. Ivie & Barrows (1935) described the male and the female of the same species as a new one called *Eperigone banksi* from Florida, USA. Marples (1960) described the male of the same species again as a new genus and species called *Aitutakia armata* from Aitutaki, The Cook Islands (Pacific Ocean). Denis (1964) redescribed the female of *Anerigone fradeorum* from Azores.

Twenty years later, and until 1999, the same species was recorded and redescribed as *Eperigone fradeorum* from South Africa (Jocqué, 1984), North America (Millidge, 1987), New Zealand (Millidge, 1988), Micronesia and Polynesia (Beatty, Berry & Millidge, 1991), China (Gao, Ren & Zhu, 1994; Song, Zhu & Chen, 1999), and from

Netherlands (Prinsen, 1996). Genus *Eperigone* Crosby & Bishop, 1928 was synonymised with genus *Mermessus* O.P.-Cambridge, 1899 by Miller (2007: 122). *Mermessus fradeorum* was recorded from the United Arab Emirates (Al-Ain, Al-Ajban, Dubai, and Sharjah) by Tanasevitch (2010) who described seven linyphiid species, three of them were new to science, from the UAE for the first time and stated that "The Arabian Peninsula ... remains a real 'terra incognita' as regards the linyphiid spider fauna".

Last year, a preliminary list of spiders and other arachnids of Saudi Arabia was published by El-Hennawy (2014) including 25 families, 69 genera, 77 species of Order Araneae. Family Linyphiidae is represented in Saudi Arabia by *Prinerigone vagans arabica* (Jocqué, 1981), *Lepthyphantes* sp., and *Mermessus* sp.; the last one was represented by one female collected by Abd El-Wakeil *et al.* (2014) from Wadi Al-Arj, Taif, Saudi Arabia.

During an ecological study, spiders were collected from a private farm located in Al-Hommamh village (East of Hail city, 27°54.746'N, 42°03.306'E, elevation 783.8m) in spring of 2013. In this farm, conventional barley crop (*Hordeum vulgare* L.) was planted on 29th December 2012. The spiders were collected between 15th of February to 30th of March 2013 using pitfall traps (8.5 diameter x 13cm deep) contained 50% Propylene Glycol and were left in field for a week. After a week, pitfall traps were collected and returned to the laboratory for subsequent storage, sorting and identification. This study is based on 10 males and 3 females collected in March by pitfall traps in addition to the female specimen of Taif which could be identified to species level. Only 3 males and 2 females were measured. Abbreviations used: CL = cephalothorax length; CW = cephalothorax width; L = length; TL = total length. All measurements were taken in millimetres.

Fig. 1. *Mermessus fradeorum* (Berland, 1932) ♂, from Hail, Saudi Arabia. Habitus, lateral view.

Figs. 2-7. *Mermessus fradeorum* (Berland, 1932) ♂, from Hail, Saudi Arabia.
2-3. Habitus. 2. dorsal view. 3. ventral view. 4-7. Pedipalp. 4, 7. retrolateral view.
5. mesoventral view. 6. prolateral view. 4-5. Chelicerae, lateral view.

Mermessus fradeorum (Berland, 1932)

(Figs. 1-11)

Parerigone fradeorum Berland, 1932: 76, f. 3-11 (D♂♀).
Anerigone fradeorum Berland, 1932: 119 (generic replacement name).
Eperigone banksi Ivie & Barrows, 1935: 12, pl. 3, f. 20-24 (D♂♀).
Aitutakia armata Marples, 1960: 386-387, f. 2a-c (D♂).
Anerigone fradeorum Denis, 1964: 80, f. 3-4 (♀).
Eperigone fradeorum Jocqué, 1984: 124, f. 3-5 (♂).
Eperigone fradeorum Millidge, 1987: 35-37, f. 124-131 (♂♀, S).
Eperigone fradeorum Millidge, 1988: 67, f. 302-303, 333-339 (♂♀).
Eperigone fradeorum Beatty, Berry & Millidge, 1991: 272 (S).
Eperigone fradeorum Gao, Ren & Zhu, 1994: 52, f. 1-6 (♂♀).
Eperigone fradeorum Prinsen, 1996: 2, f. 8 (♂).
Eperigone fradeorum Song, Zhu & Chen, 1999: 167, f. 93D-E, H-I (♂♀).
Mermessus fradeorum Tanasevitch, 2010: 16, f. 12-19 (♂♀).


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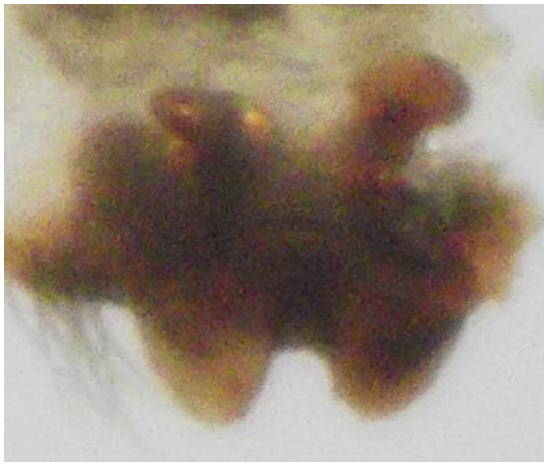
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Figs. 8-11. *Mermessus fradeorum* (Berland, 1932) ♀, Saudi Arabia.
8-9 (Taif). Habitus. 8. dorsal view. 9. ventral view, showing epigynum. 10-11 (Hail).
10. Eyes and chelicerae, frontal view. 11. Epigynum, dorsal view, after clearing.

Material examined: 10♂♂ 3♀♀, Saudi Arabia, Hail (27°54.746'N, 42°03.306'E, elevation 783.8m) (3♂, 1-8/3/2013, 2♂ 2♀, 13-20/3/2013, 5♂ 1♀, 20-27/3/2013) pitfall traps in barley cultivation. 1♀, Saudi Arabia, Taif, Wadi Al-Arj (21º21'N, 40º30'E) 10/8/2013, pitfall trap in a wetland.

Description: Male (Figs. 1-7): TL 2.64-2.74, CL 1.16-1.2, CW 0.8-0.86, CL/CW 1.35-1.5. Carapace orange, with ocular area, among eyes, mostly blackish. Anterior median eyes smaller than other eyes, nearer to each other than to anterior lateral eyes. Posterior eyes equidistant. Chelicerae (Figs. 4-5) with meso-frontal tooth and a row of antero-lateral denticles (at base) or hook-shaped teeth (towards tip). Legs slender, orange; femur I shorter than cephalothorax length.

Pedipalp (Figs. 4-7): Patella without spines, apically with a small ventral protrusion. Tibia with long hairs; dorsally with a sharply pointed dark-brown apical apophysis.

Abdomen (Figs. 1-2): L 1.4-1.44; grey with faint paler chevrons dorsally, darker posteriorly.

Description: Female (Figs. 8-11): TL 2.9, CL 1.06, CW 0.8, CL/CW 1.33, AL 1.8. Hail (TL 2.96, CL 1.26, CW 0.7, CL/CW 1.8, AL 1.64. Taif). Colour as in male.

Habitat. Both males and females were found in pitfall traps in March (Hail) and August (Taif), in cultivated area and wetland. They were found in pitfall traps with a few spiders of Family Gnaphosidae and Family Theridiidae, a moderate number of Family Lycosidae and plenty of the linyphiid spider *Prinerigone vagans*.

Distribution. This species is cosmopolitan (World spider Catalog, 2015). It is recorded from: Azores (Portugal), Netherlands, Canada, USA, Micronesia and Polynesia, The Cook Islands (Pacific Ocean), New Zealand, South Africa, China, United Arab Emirates. In Saudi Arabia, it is recorded for the first time from Hail and Taif (Fig. 12). Also, it is the first record of Family Linyphiidae in Hail (Desouky & El-Hennawy, 2012).

Fig. 12. Map of the Arabian Peninsula showing the distribution of *Mermessus fradeorum*. ***** = precedent records in UAE (Tanasevitch, 2010). * = new record localities: Hail and Taif.

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* = Not seen

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Life history of *Geolycosa urbana* (Cambridge, 1876) (Araneae: Lycosidae) reared in laboratory

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Abstract

This study was conducted to rear the lycosid spider *Geolycosa urbana* (Cambridege, 1876) on different prey species in laboratory at temperature of 27±1°C and relative humidity of 70-80%. This spider had six spiderling instars for female (63.8 days) and five instars for male (36.8 days) before reaching adulthood. The study also showed that first spiderling instar consumed a large number of red spider mites *Tetranychus urticae*, while the second through fourth instars were fed on *Drosophila melonogaster*, but all individuals of the fifth instar were fed on the larvae and adults of the fruit fly *Ceratitis capitata* and house fly *Musca domestica*. The adult females were only fed on larvae and adults of fruit fly and house fly during the sixth spiderling instar. The life cycle and longevity periods of the spider lasted 53.22, 63.8 and 25.5, 87.75 days for male and female respectively. Forty spiderlings were reared each one alone (individual rearing).

Keywords: Spiders, Lycosidae, *Geolycosa urbana*, life history, rearing.

Introduction

Spiders are completely predatory animals that play an important role in soil formation, instead of, they are important as enemies of other soil inhabitants (Kuhnelt, 1976). According to Hassan *et al.* (1951), spiders were found almost everywhere on earth, few live in fresh water and on the seashore. Most of them feed on the body fluids of insects and many species build webs on which their victims are snared. Some are dangerous to man and other animals. Spiders are one of the most diverse groups of animal species and occupy practically all terrestrial ecosystems. These predatory

arthropods generally attack insects non-specifically, and may stabilize arthropod populations (Wise, 1995). They prey upon other arthropods, mainly insects, although woodlice and centipedes may also be taken. It is important to study the different ecological aspects of the spiders to maximize their important role as biological control agents (Ghabbour *et al.*, 1999). Wolf spiders (Lycosidae) are vagrant predators that capture their prey without a web and their females carry on a well developed brood care. The spiders of this family are characterized by the specific arrangement of their 8 eyes that form three rows, with the front row consisting of four small eyes and the two back rows consisting each of two larger eyes. In crop fields in different continents, wolf spiders have frequently been found to belong to the dominant members of ground surface-dwelling spider communities. Among 36 species of spiders collected by various methods in representative alfalfa fields in Northern California, the most abundant species was *Pardosa ramulosa* McCook (Lycosidae), which comprised ca. 60% of the 14,522 specimens collected with the D-Vac® (Yeargan & Dondale, 1974). In Texas cotton fields wolf spiders (*Pardosa* spp.) constituted ca. 40% of all spiders captured in pitfall traps (Dean *et al.*, 1982). In different parts of Asia, wolf spiders of the genus Lycosa were found to be abundant, and apparently important, predators in rice fields not or little treated with pesticides (IRRI, 1974; Kiritani, 1979). In general European cereal fields, wolf spiders of the genus *Pardosa* often constitute by numbers >30% of the spiders sampled with pitfall traps (Geiler, 1963; Luczak, 1975). Since in some crop fields spiders occur in quite high population densities, they are suspected to play a beneficial role as natural control agents of insect pests. However, currently little is known about the spiders' role as predators of insects in agroecosystems (Nyffeler & Benz, 1979, 1987). In this paper, observational data on the life history and feeding of *Geolycosa urbana* (Cambridge, 1876) are presented.

Material and Methods

Three female lycosid spiders with an egg sac attached to the spinnerets of each of them were collected by hand on 14 June 2013 from Badr district, EL-Beheira Governorate, north-west of Cairo. Badr region has a diversity of planted habitats including orchard trees. Specimens were individually kept in small plastic vials and transferred to the laboratory. The three females were kept in plastic vials of 10 cm diameter x 7 cm height, with a cotton piece moistened with water in the bottom to keep humidity at the level of 70-80% as measured by hygrometer in field. The females were supplied with prey and kept in an incubator at 27±1°C and 70-80% R.H. until eggs hatching. At the fifth day after emergence of hatched spiderlings from the egg sacs they were individually reared in plastic vials of 1.5 cm diameter x 4 cm height, each spiderling alone, under the same laboratory conditions. Each spiderling was supplied with a known number of adults of the two-spotted red spider mite *Tetranychus urticae* C.L. Koch, 1836 as prey for the first instar, while the second through fourth instars were supplied with a known number of different stages of the common fruit fly *Drosophila melanogaster* Meigen, 1830, then the fifth and sixth instars and adults were supplied with a mixture of the Mediterranean fruit fly *Ceratitis capitata* (Wiedemann, 1824) and the housefly *Musca domestica* Linnaeus, 1758 taking in account their size. The hatched spiderlings were reared until reaching adulthood and transferred to larger vials (3 x 7 cm) after third moult. Adults were reared to observe their mating behaviour and to study other aspects of the life cycle of the species. Identification of the species was carried out by El-Hennawy (Cairo, Egypt) as *Geolycosa urbana* (Cambridge, 1876).

Results and Discussion

Egg sac, eggs and incubation period

The egg sacs of *G. urbana* were circular in shape, slightly enlarged (5-6 mm in diameter), and light yellow in colour which changed to pale yellow just before hatching. The eggs were circular in shape and creamy in colour and became darker before hatching. All spiderlings (60, 70, and 80 individuals) hatched and emerged from the egg sacs through a tiny pore of each sac. The obtained results indicated that incubation period for both sexes averaged 14 days.

Spiderlings

All spiderlings were reared together until the first moult, supplied with food, daily examined and the consumed prey individuals were replaced by fresh ones. After five days, the experiment began with 40 spiderlings from the 89 spiders remained after cannibalism. Each spiderling was individually reared in 1.5 x 4 cm plastic vials.

The life cycle

During rearing the 40 spiderlings of *G. urbana*, 5 individuals escaped before reaching maturity, 12 individuals died before reaching adulthood, and 23 individuals reached adult stage. The spiderlings passed through 5 instars for males and 6 instars for females during their development (Table 1). The longest duration was about 25 days for male and female. The shortest instar was the 2nd one with 6.66-5.81 days and the 4th one with 5.8-6.72 days for male and female respectively (Table 1).

In case of *Pardosa crassipalpis* Purcell, 1903 of South Africa which is a predator of the common red spider mite, *T. cinnabarinus*, "the males pass through seven instars before reaching maturity and the females through eight" (Dippenaar Schoeman, 1977).

Table 1. Duration of different stages of *Geolycosa urbana* fed on different prey species.

Stage	Prey species	Duration of different stages			
		Male		Female	
		Mean	S.D.	Mean	S.D.
1st spiderling	*T. urticae*	25.33	1.32	25.27	1.34
2nd spiderling	*Drosophila melanogaster*	6.66	1.41	5.81	2.04
3rd spiderling		7.55	1.66	7.9	2.66
4th spiderling		5.8	1.36	6.72	1.55
5th spiderling	*C. capitata* & *M. domestica*	7.5	1.74	8.00	2.04
6th spiderling		--	--	9.36	1.62
Total immature		53.22	2.53	63.8	2.48
Life cycle		67.22	2.53	77.8	2.48
Longevity		25.5	0.5	117.75	8.95
Life span		92.72	1.51	195.55	5.71

Adult

Immatures of *G. urbana* reached maturity after about 53 days for males and 64 days for females (Table 1). The 23 adults were 7 males (30.4%) and 16 females (69.6%).

Adult longevity also differed according to sex. Generally, adult female of *G. urbana* lived longer than male when both sexes fed on the adults of the *C. capitata* and different stages of larvae and adults of the housefly *M. domestica*. As shown in Table (1), this period took about 25 and 118 days for male and female, respectively.

Life span was also longer for females than that of males (about 93 and 195 days for male and female, respectively) (Table 1).

Foelix (2011) reported that most spiders of temperate regions live only one year; but some spiders live for two years. Generally, female spiders have longer life expectancy, and most males die shortly after mating.

Our results are different in comparison with what Miller & Miller (1987) stated for *Geolycosa turricola* of the USA "*G. turricola* has a two year life cycle".

Table 2. Fecundity of female *Geolycosa urbana* fed on different prey species.

Parameters	Days	S.D.
Pre-oviposition	14.25	0.95
Oviposition	59.5	4.20
Post-oviposition	14	1.82
Average egg sacs / female	4	0.81
Total number of eggs / female	121.5	3.87

As shown in Table (2), the female produced 4 egg sacs containing about 120 eggs (30 eggs per sac). This is almost similar to the case of *Pardosa crassipalpis* of South Africa, as Dippenaar Schoeman (1977) stated "During the reproductive phase the female spider produces an average of three egg sacs, with an average number of 23.3 eggs per sac".

Food consumption of *Geolycosa urbana* reared in laboratory

During the study of food consumption of *G. urbana*, different spiderling instars and adults were fed on *T. urticae* and various instars of *D. melanogaster*, *C. capitata*, *M. domestica* larvae and adults. Both first instars were fed on *T. urticae*. The second, third and fourth instars of spiderlings fed on a mixture of the larve and adults of *D. melanogaster*, while the fifth instar of spiderling until the rest of life cycle was fed on adults of both *M. domestica* and *C. capitata*. Number of consumed prey species by different spiderling instars is shown in Table (3).

Table 3. Food consumption of *Geolycosa urbana* fed in laboratory on different prey species.

Spiderling instar	Prey species	Male		Female	
		Mean	S.D.	Mean	S.D.
1st instar	*Tetranychus urticae*	8.11	1.16	8.63	0.50
2nd instar	*Drosophila melanogaster*	3.8	0.60	4.09	0.83
3rd instar		4.6	1.22	4.81	0.75
4th instar		5.5	1.01	5.90	0.94
5th instar	*Ceratitis capitata* & *Musca domestica*	2.7	0.66	3.36	0.50
6th instar		--	--	3.72	0.46

Acknowledgment

We would like to thank Mr. Hisham K. El-Hennawy (Cairo) who identified the studied spider species and kindly revised an early manuscript of this paper.


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Figs. 1-7. *Geolycosa urbana* (Cambridege, 1876) alive in laboratory.
1. Female. 2. Male. 3. Male approaching towards female. 4. Mating. 5. Female with her egg sac attached to spinnerets. 6. Hatched spiderlings upon their mother's back. 7. First instar spiderlings after leaving their mother's back.

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The first record of *Plexippus clemens* (O.P.-Cambridge, 1872) (Araneae: Salticidae) in Egypt

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Abstract

Plexippus clemens (O. P.-Cambridge, 1872) of family Salticidae is recorded from Egypt for the first time. It is the second recorded species of genus *Plexippus* in Egypt.

Keywords: Spiders, Salticidae, *Plexippus clemens*, *Plexippus paykulli*, Menoufiya, Egypt.

Introduction

Family Salticidae Blackwall, 1841 is the greatest spider family (5813 species of 587 genera). Genus *Plexippus* C.L. Koch, 1846 includes 39 species, recorded from warm regions of the Earth (Africa, Greece and Turkey to Central Asia, all countries of south Asia to Japan, New Guinea, Australia, Hawaii, USA, Mexico, Paraguay). Its type species *Plexippus paykulli* (Audouin, 1825) is cosmopolitan. *Plexippus clemens* (O.P.-Cambridge, 1872) is a Palaearctic species recorded from Turkey, Libya, Palestine/Israel, Yemen, and Iran (World spider Catalog, 2015).

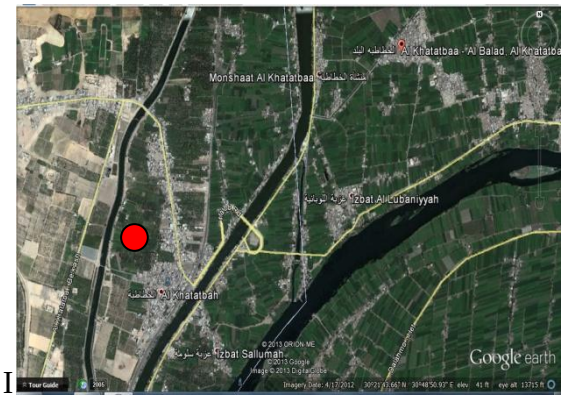
Octavius Pickard-Cambridge (1872) described a single adult female of a new species as *Salticus clemens* found on low plants on the plains of the Jordan. After four years, Simon (1876) noted this species among foreign species to the French fauna as *Euophrys clemens*. More than one century elapsed before the publication of the first drawings of the female's epigynum of *Menemerus clemens* (*Attus clemens*) by Prószyński (1984: 85). After ten years, Wesołowska & van Harten (1994) described, and illustrated the epigynum of the female holotype of, the new species *Plexippus similis* from Yemen.

Prószyński (2003) redescribed the female of *Plexippus clemens* from the type locality transferring it from *Menemerus*, synonymised it with *Plexippus similis*, and described both the male and the female of the new species *Plexippus tectonicus* from the

same country. Four years later, Wesołowska & van Harten (2007) described the male of *Plexippus clemens* from Yemen and synonymised *Plexippus tectonicus* with it.

Logunov (2010) recorded *Plexippus clemens* from Iran, finely illustrated the male and female genitalia, and confirmed "that the name *P. clemens* is indeed a senior synonym both of *P. similis* and of *P. tectonicus*". Recently, Coşar *et al.* (2014) recorded *Plexippus clemens* from Turkey, and illustrated their single female specimen and its epigynum.

During a survey of spiders in Mango orchards and other cultivations in Menoufiya Governorate, a number of salticid species were collected. Among those salticids, two *Plexippus* species were found. One of them is the cosmopolitan *Plexippus paykulli* (Audouin, 1825) which was described for the first time from Egypt by Audouin (1825) and recorded from Alexandria, Cairo, north and south Sinai (El-Zaranik and Abu Galoum), south-east Egypt (El-Shalateen and Bir El-Gahliya) (El-Hennawy, 2006). The second species is identified as *Plexippus clemens* (O.P.-Cambridge, 1872) depending on the descriptions and drawings published by the authors mentioned before. The collected adult specimens were 13 *P. paykulli* + 7 *P. clemens*. Three localities were visited during the survey: I. Izbat Salluma, El-Khatatba (30°21'43.66"N, 30°48'50.93"E, elevation 12m), II. Farm at El-Sadat City (30°20'57.20"N, 30°31'44.88"E, elevation 49m), III. Farm of Faculty of Agriculture, Shebeen El-Kom (30°33'23.48"N, 31°01'24.08"E, elevation 12m). Abbreviations used: CL = cephalothorax length; CW = cephalothorax width; L = length; TL = total length. All measurements were taken in millimetres.

I 

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Maps of the three localities visited during the survey:
I. Izbat Salluma, El-Khatatba [عزبة سلومة - الخطاطبة],
II. Farm at El-Sadat City [مزرعة بمدينة السادات],
III. Farm of Faculty of Agriculture, Shebeen El-Kom [مزرعة كلية الزراعة - جامعة المنوفية ، شبين الكوم].


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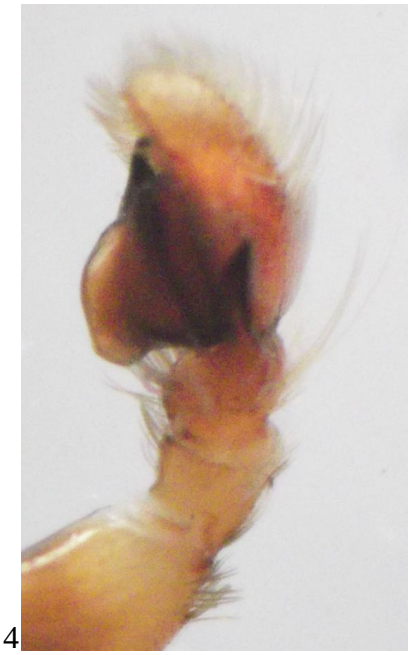
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Figs. 1-7. *Plexippus clemens* (O.P.-Cambridge, 1872). 1-2. Habitus, dorsal view. 1. Male. 2. Female. 3-4. Male pedipalp. 3. ventral view. 4. retrolateral view. 5-7. Female epigynum. 5-6. ventral view. 7. Vulvae, dorsal view. 6-7. after clearing.

Plexippus clemens (O.P.-Cambridge, 1872)

(Figs. 1-7)

Salticus clemens O. Pickard-Cambridge, 1872: 335-336 (D♀).
Euophrys clemens Simon, 1876: 196.
Menemerus clemens Prószyński, 1984: 85 (T♀ from *Euophrys*).
Plexippus similis Wesołowska & van Harten, 1994: 72, 74-75, f. 147-149 (D♀).
Plexippus clemens Prószyński, 2003: 142, f. 592-593 (T♀ from *Menemerus*, S).
Plexippus tectonicus Prószyński, 2003: 145-146, f. 581-582, 586, 591, 736-737 (D♂♀).
Plexippus clemens Wesołowska & van Harten, 2007: 246-248, f. 165-168 (S♂).
Plexippus clemens Logunov, 2010: 87-88, f. 7-12 (♂♀).
Plexippus clemens Coşar, Danışman & Yıldıran, 2014: 92, f. 8A-C, 9A-B (♀).

Material examined: 2♂♂3♀♀ Egypt, Menoufiya: Ezbet Salloma, El-Khatatba, Mango orchard (2♀♀, 15.2.2014, 1♂1♀, 20.4.2013); Farm at El-Sadat City, Tomato cultivation (1♂, 13.7.2013).

Description. See: O. Pickard-Cambridge (1872), Wesołowska & van Harten (1994, 2007), Prószyński (2003), Logunov (2010), and Coşar *et al.* (2014).
The description of Octavius Pickard-Cambridge (1872: 335-336) of the female is suitable for both male and female with slight differences in colouration as seen in Figs. (1-2). This description is:

"Female adult, length 2¾ lines [about 5.82 mm].
The *cephalothorax* of this Spider is of the ordinary form; its colour is yellow, with a paler patch on the occiput; the upper surface of the caput, or the ocular area, is strongly suffused with black; and there are several slightly converging black streaks on the hind slope; the sides also are a little tinged with brown-black. Each of the eyes of the second (or intermediate) row is rather nearer to that on its side of the hinder row than to the lateral on the same side of the front row, but is in the same straight line. The *legs* and *palpi* are yellow; the former differ but little in length; they are moderately long and strong, and are furnished sparingly with hairs and fine spines. Each tarsus ends with a small claw-tuft. The *falces* [*chelicerae*] are small, conical, and, with the labium, maxillae, and sternum, also of a yellow colour.
The *abdomen* is of a duller yellow colour than the cephalothorax, and is finely and thickly striated in a longitudinal direction with dusky yellow-brown. A central longitudinal paler band (being freer from these striations) is indistinctly visible on the upperside, and is divided near its fore extremity by a short red-brown longitudinal line, trifid at its hinder extremity, and followed by several dull yellow brown angular bars or chevrons. The intermediate spaces between these chevrons are perhaps more prominent and observable than the chevrons themselves, and, together with the space before the outer limbs of the trifid portion of the red-brown line, are perhaps more calculated to catch the eye as the distinctive pattern than if we take the yellow portions to be the ground-colour, and describe the pattern as brown. The abdomen is clothed thinly with short yellowish and greyish hairs, with a few long blackish recurved ones on the fore part of the upperside."

In addition, the male is characterised by the "Spatulate, very long and dense black hairs retrolaterally on palpal femur (Fig. 168) (other members of this genus have white hairs)" (Wesołowska & van Harten, 2007) (Figs. 1, 3-4).
Measurements. Male (Figs. 1, 3-4): TL 5.5, CL 2.5, CW 1.7, CL/CW 1.47, AL 3.0.
Female (Figs. 2, 5-7): TL 5.4, CL 2.6, CW 1.65, CL/CW 1.57, AL 2.9.
Male pedipalp. Figs. (3-4). Female epigynum and vulvae. Figs. (5-7).

Distribution. This species is recorded from Turkey, Libya, Palestine/Israel, Yemen, and Iran (World spider Catalog, 2015). Its record from Egypt is within the range of its known geographical distribution.


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Figs. 8-11. *Plexippus paykulli* (Audouin, 1825). 8-9. Habitus, dorsal view. 8. Male. 9. Female. 10. Male palpal organ, ventral view. 11. Female epigynum, ventral view.

Adult *Plexippus clemens* (O.P.-Cambridge, 1872) can be easily differentiated from its congeneric species *Plexippus paykulli* (Audouin, 1825) by general colouration and external genitalia of male and female, i.e. palpal organ and epigynum. The following table summarizes the differences between the two species:

	Plexippus			
	clemens ♂*	*clemens* ♀**	*paykulli* ♂*	*paykulli* ♀**
Colouration	Lighter (Figs. 1-2)		Darker (Figs. 8-9)	
TL	5.5	5.4	6.7	10.0
Genitalia	Fig. 3	Fig. 5	Fig. 10	Fig. 11

* = collected from a farm at El-Sadat City
** = collected from Izbat Salluma, El-Khatatba

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The effect of organic and conventional farming on the activity of spider assemblage (Araneae) in some medicinal plants in Fayoum, Egypt

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Abstract

Spider activity occurred in three medicinal plants, i.e. Wormwood, Daisy and Egyptian mint, with organic and inorganic fertility, was assessed using pitfall traps in Fayoum, Egypt. Community composition of the organic and the conventional cultivation of collected spiders were determined throughout the period of study using the Shannon-Wiener and Simpson Indices of diversity. A total of 387 and 350 individuals included 20 and 24 species in the organic and the conventional cultivation, respectively, of higher diversity index in the conventional system. According to Simpson, it was found that organic cultivation included the highest number of dominant species. Most species caught belonged to Family Lycosidae with especial high captures of *Wadicosa fidelis* and *Pardosa* species. Sørensen Quotient of Similarity concluded that the two communities are nearly approximate, as they recorded 64% of similarity. The monthly fluctuation of the total number of spiders showed high population in March.

Keywords: Spiders, Conventional cultivation, Organic cultivation, *Leucanthemum*, Egyptian mint, Wormwood, Shannon-Wiener Index, Simpson index, Spider diversity, Egypt.

Introduction

Organic management promotes the development of soil fauna such as earthworms and above ground arthropods, improving the growth conditions of the crop. More abundant predators help to control harmful organisms. Spiders constitute one of the major groups of generalist predators due to their high abundance and predominantly insectivorous feeding habits (Tahir & Butt, 2009). They play an important predatory role in agro-ecosystem (Nyffeler & Benz, 1987; Nyffeler, 2000a & b; Symondson *et al.*, 2002). However, crop type had more effect on activity of spider than management system, several factors effect on population density and diversity of spiders; organic field support a higher abundance of spiders than conventional fields (Feber *et al.*, 1998; Schmidt *et al.*, 2005; Fuller *et al.*, 2005). Eyre *et al.* (2008) found that fertility rather than

crop protection management had considerably more influence on the activity of beneficial invertebrates. The biological diversity in the organic system is important because it contributes to keeping the biological equilibrium, essential in an agro-ecosystem bring about greater stability for the system and consequently fewer problems with diseases and pests (Bettiol *et al.*, 2002).

Diversity indices provide more information about community composition than simply species richness tacking relative abundance in consideration; that is to say information about rarity and commonness of species in a community. It is an important tool for biologists trying to understand community structure. It is argued that organic systems are more diverse and therefore more stable resulting in lower incidences of pest and disease problems and increased biodiversity (Lampkin, 1990).

Present study was aimed to evaluate the influence of the organic and the conventional cropping systems for three medicinal plants on the activity density and diversity of spiders.

Material and Methods

The field experiment was carried out in Fayoum governorate; an area of 2100m^2 in two different regions for conventional and organic management. Each region was divided into three equal plots (each of 700 m^2) cultivated with three medicinal plants, wormwood, *Artemisia* sp.; Daisy, *Leucanthemum vulgare* (L.) and Egyptian mint, *Mentha niliaca* Jacq. The conventional plots were treated with inorganic fertilizers and sprayed with pesticides where appropriate while the organic plots were fertilized with compost and no sprays were used. Spiders were sampled by using pitfall traps method as described by Southwood (1978) and Slingsby & Cook (1986). Ten pitfall traps were placed in each plant every ten days. Samples were sorted in the laboratory; collected spiders were kept in glass vials containing 75% ethyl alcohol and some droplets of glycerine, counted and identified to species level as much as possible.

a. Frequency and abundance values

The frequency values of the most abundant species were classified into three classes according to the system adopted by Weis Fogh (1948); “Constant species” more than 50% of the samples, "accessory species" 25-50 % of the samples and "accidental species" less than 25%. On the other hand, the classification of dominance values were done according to Weigmann (1973) system in which the species were divided into five groups based on the values of dominance in the sample; Eudominant species (>30% individuals), dominant species (>10-30% individuals), subdominant (5-10% individuals), recedent species (1-5% individuals) and subrecedent species (<1% individuals).

b. Species diversity

The biodiversity of ground fauna collected were estimated by using equilibrium. Diversity of collected arthropods was determined for samples pooled over one summer season by two different patterns of fertilization. It was measured by diversity index that reflected the number of species (richness) in the samples. Two common indices were computed, Shannon-Wiener index "H" and Simpson index "S". They were calculated as described by Ludwig and Reynolds (1988). $H' = -\sum (ni/n) \ln (ni/n)$ and $S = \sum (ni/n)^2$ where *ni* is the number of individuals belonging to the i^{th} of "S" taxa in the sample and "*n*" is the total number of individuals in the sample. "H" is more sensitive to changes in number of species and diversity, while "S" is a dominance index gives more weight to common or dominant species (Ludwig & Reynolds, 1988); it highly suggests that the two individuals drawn at random from the population belong to the same species. If the

result is high then the probability of both individuals belonging to the same species is high, and as a result the diversity of the community samples might be low.

c. Sørensen quotient of similarity

To allow a comparison of the two samplings between microhabitats of the two cultivation systems, Sørensen's quotient of similarity (Sørensen, 1948) was used to determine the similarities of spider species composition among the communities, it is: QS = 2 C/A + B. Where A and B are the number of species in samples A and B, respectively, and C is the number of species shared by the two samples; QS is the quotient of similarity and ranges from 0-1. [A = Organic management, B = conventional management].

Results and Discussion

Spiders collecting

Collected spiders, 737 individuals, represented 10 families, 26 identified genera and 27 identified species. The 10 families found in the present experiment represent 25% of the 40 families recorded in Egypt (El-Hennawy, 2006).

Spiders inhabiting land of organic management

A total of 387 spiders were cached in the organic cultivation. They were identified in 7 families, 20 genera, and 20 species. Juveniles comprised 26.6% while adults averaged 73.4%. The sex ratio was 2.9 males: 1 female (Table 1). Of the most abundant species, five ranked in the top, *Wadicosa fidelis* (195 individuals), *Pardosa* sp. (89), *Hogna* sp. (35), *Thanatus albini* (14), and *Zelotes* sp. (12).

Vegetation type influenced spider abundance, plots of Egyptian mint and daisy plants (Table 3) received a high number of spiders, 151 individuals, in both plants, while wormwood showed the lowest number, 85 individuals, its natural chemical structure contained within leaves become detergent to common pests and in turn the abundance of spiders was reduced. However, wormwood plant seemed to have a higher diversity than Egyptian mint and daisy plants because it had the greatest number of species recorded 14, 12 & 13 species, respectively. This result is in accordance with Rizk *et al.* (2012) who indicated that spider assemblages are highly influenced by variations in plant community structure. Liu *et al.* (2003) indicated that the density of spiders in the field increase with the increase in plant size and complexity, thus smaller plants has fewer spiders than tall ones.

Spiders inhabiting land of conventional management

A total of 350 spiders were cached in the conventional cultivation. They were identified in 10 families, 23 genera, and 23 species. Juveniles comprised 28.3% while adults averaged 71.7%. The sex ratio was 2.4 males: 1 female (Table 2). The most dominant species was *W. fidelis* (218 individuals), *Pardosa* sp. (46), *Steatoda erigoniformis* (13) and *Hogna* sp. (11).

Daisy plants supported a higher abundance of spiders, 137 individuals (with two egg sacs), while Egyptian mint and wormwood plants of 118 and 95 individuals, respectively. However wormwood plant have the fewest number of spiders in the conventional management but rather of high diversity which recorded 16 species while daisy and Egyptian mint recorded 15 and 11 species, respectively. Schmidt *et al.* (2005) found that most activity density of spider was in conventional management crops.

Members of Theridiidae and Linyphiidae were more active in conventional management while Lycosidae and Gnaphosidae preferred organic management; this result is in accordance with that of Eyre *et al.* (2008).

Table 1. Species richness of spiders inhabiting land of organic management.

Family	Genera & Species	Wormwood			Daisy			Egyptian mint			Σ			Σ	Total	%
		♂	♀	j	♂	♀	j	♂	♀	j	♂	♀	j			
Lycosidae	Unidentified	2		1				1			3		1	4	323+3▲	83.5
	Wadicosa fidelis	25	8	1	32	17	40	41	20+▲	11	98	45+▲	52	195+▲		
	Pardosa sp.	11	7+▲	2	8	3	6	37	7	8	56	17+▲	16	89+▲		
	Hogna ferox	4	1		2	5+▲	19	3	1		9	7+▲	19	35+▲		
Salticidae	Unidentified									1			1	1	6	1.5
	Phlegra flavipes	4									4			4		
	Heliophanillus fulgens	1									1			1		
Philodromidae	*Thanatus albini*	2		1	5			4	1	1	11	1	2	14	14	3.6
Eutichuridae	*Cheiracanthium* sp.			2	1						1		2	3	3	0.8
Theridiidae	*Steatoda erigoniformis*	1			2	1		2		1	5	1		6	8	2.1
	Enoplognatha gemina				1						1			1		
	Kochiura aulica				1						1			1		
Gnaphosidae	Unidentified			2						1			3	3	20	5.2
	Zelotes laetus	3		3			1	5			8		4	12		
	Micaria dives	1	1		1	1					2	2		4		
	Trachyzelotes jaxartensis				1						1			1		
Linyphiidae	Unidentified				2	1				1	2	1	1	4	13	3.4
	Mermessus denticulatus							2	1	1	2	1	1	4		
	Sengletus extricatus	1									1			1		
	G1	1			1			1		1	3		1	4		
	Σ	56	17+▲	12	58	27+▲	66	97	29+▲	25	211	73+3▲	103	387+3▲	387+3▲	
	Total	85+▲			151+▲			151+▲			387+3▲					

▲ = Egg sac.

Table 2. Species richness of spiders inhabiting land of conventional management.

Family	Genera & Species	Wormwood			Daisy			Egyptian mint			Σ			Σ	Total	%
		♂	♀	j	♂	♀	j	♂	♀	j	♂	♀	j			
Lycosidae	*Wadicosa fidelis*	20	16	22	34	13	42	40	21	10	94	50	74	218	276+2▲	78.9
	Pardosa sp.	7	1	2	12	2+▲	4	14	2	2	33	5+▲	8	46+▲		
	Hogna ferox			2	3	2+▲		2	2		5	4+▲	2	11+▲		
	Geolycosa urbana				1						1			1		
Salticidae	Unidentified		1									1		1	5	1.4
	Phlegra flavipes	1			2			1			4			4		
Philodromidae	*Thanatus albini*	1		1	2	2	1	2			5	2	2	9	9	2.6
Eutichuridae	*Cheiracanthium isiacum*							1			1			1	1	0.3
Theridiidae	*Steatoda erigoniformis*	2			1			10			13			13	17	4.9
	Enoplognatha gemina				3						3			3		
	Kochiura aulica	1									1			1		
Gnaphosidae	Unidentified			1									1	1	14	4
	Zelotes laetus				1		1	2		1	3		2	5		
	Micaria dives	2	2		1	1					3	3		6		
	Trachyzelotes jaxartensis	1		1							1			2		
Dictynidae	*Lathys humilis*					1						1		1	1	0.3
Linyphiidae	Unidentified			2			1	2	1	1	2	1	4	7	22	6.3
	Prinerigon evagans	1									1			1		
	Sengletus extricatus				1	1		2			3	1		4		
	Erigone sp.					2						2		2		
	G1	1	1	1	1	1	1			2	2	2	4	8		
Thomisidae	*Thomisus spinifer*	1	1								1	1		2	2	0.6
Titanoecidae	*Nurscia albomaculata*	2		1							2		1	3	3	0.9
	Σ	40	22	33	62	25+2▲	50	76	26	16	178	73+2▲	99	350+2▲	350+2▲	
	Total	95			137+2▲			116			350+2▲					

▲ = Egg sac. A = Organic management, B = Conventional management.

Table 3. Occurrence of spiders in organic and conventional managements.

Family	Genera & Species	Wormwood		Daisy		Egyptian mint		Total	
		A	B	A	B	A	B	A	B
Lycosidae	Unidentified	3				1		4	
	Wadicosa fidelis	34	58	89	89	72+▲	71	195+▲	218
	Pardosa sp.	20+▲	10	17	18+▲	52	18	89+▲	46+▲
	Hogna ferox	5	2	26+▲	5+▲	4	4	35+▲	11+▲
	Geolycosa urbana				1				1
Salticidae	Unidentified		1			1		1	1
	Phlegra flavipes	4	1		2		1	4	4
	Heliophanillus fulgens	1						1	
Philodromidae	*Thanatus albini*	3	2	5	5	6	2	14	9
Eutichuridae	*Cheiracanthium isiacum*						1		1
	Cheiracanthium sp.	2		1				3	
Theridiidae	*Steatoda erigoniformis*	1	2	3	1	2	10	6	13
	Enoplognatha gemina			1	3			1	3
	Kochiura aulica		1	1				1	1
Gnaphosidae	Unidentified	2	1			1		3	1
	Zelotes laetus	6		1	2	5	3	12	5
	Micaria dives	2	4	2	2			4	6
	Trachyzelotes jaxartensis		2	1				1	2
Dictynidae	*Lathys humilis*				1				1
Linyphiidae	Unidentified		2	3	1	1	4	4	7
	Prinerigon evagans		1						1
	Sengletus extricatus	1			2		2	1	4
	Erigone sp.				2				2
	Mermessus denticulatus					4		4	
	G1	1	3	1	3	2	2	4	8
Thomisidae	*Thomisus spinifer*		2						2
Titanoecidae	*Nurscia albomaculata*		3					0	3
	Total	85+▲	95	151+▲	137+2▲	151+▲	118	387+3▲	350+2▲

Table 4. The dominance-frequency relationship of spider communities in organic land.

Family	Genera & Species	Wormwood					Daisy					Egyptian mint				
		Total	sp.%	Dom.	F.%	Freq.	Total	sp.%	Dom.	F.%	Freq.	Total	sp.%	Dom.	F.%	Freq.
Lycosidae	Unidentified	3	3.5	R								1	0.7	sr		
	Wadicosa fidelis	34	40	E	72.9	C	89	58.9	E	87.4	C	72	47.4	E	84.9	C
	Pardosa sp.	20	23.5	D			17	11.3	D			52	34.2	E		
	Hogna ferox	5	5.9	sd			26	17.2	D			4	2.6	R		
Salticidae	Unidentified											1	0.7	sr		
	Phlegra flavipes	4	4.7	R	5.9	A	0	0				0	0		0.7	A
	Heliophanillus fulgens	1	1.2	R			0	0				0	0			
Philodromidae	*Thanatus albini*	3	3.5	R	3.5	A	5	3.3	R	3.3	A	6	3.9	R	3.9	A
Eutichuridae	*Cheiracanthium* sp.	2	2.4	R	2.4	A	1	0.6	sr	0.6	A	0	0		0	A
Theridiidae	*Steatoda erigoniformis*	1	1.2	R			3	1.9	R			3	1.9	R		
	Enoplognatha gemina	0			1.2	A	1	0.6	sr	3.3	A	0	0		1.9	A
	Kochiura aulica	0					1	0.6	sr			0	0			
Gnaphosidae	Unidentified	2	2.4	R								1	0.7	Sr		
	Zelotes laetus	6	7.1	sd	11.8	A	1	0.6	sr	2.7	A	5	3.3	R	3.9	A
	Micaria dives	2	2.4	R			2	1.3	R			0	0			
	Trachyzelotes jaxartensis	0	0				1	0.6	sr			0	0			
Linyphiidae	Unidentified						3	1.9	R			1	0.7	sr		
	Mermessus denticulatus	0	0		2.4	A	0	0		2.7	A	4	2.6	R	4.6	A
	Sengletus extricatus	1	1.2	R			0	0				0	0			
	G1	1	1.2	R			1	0.6	sr			2	1.3	R		
	Σ	85					151					152				

Frequency (abundance) by Weis Fog: > 50% = Constant (C), 25-50% = Accessory (ac), < 25% = Accidental (A)
Dominance by Weigmann: > 30% = Eudominant (E), 10-30% = Dominant (D), 5-10% = Subdominant (sd),
1-5% Recedent (R), < 1% = Subrecedent (Sr)

Table 5. The dominance-frequency relationship of spider communities in conventional land.

Family	Genera & Species	Wormwood					Daisy					Egyptian mint				
		Total	sp.%	Dom.	F.%	Freq.	Total	sp.%	Dom.	F.%	Freq.	Total	sp.%	Dom.	F.%	Freq.
Lycosidae	*Wadicosa fidelis*	58	61.1	E	73.7	C	89	67.9	E	82.3	C	71	61.2	E	80.1	C
	Pardosa sp.	10	16.5	Dom.			18	13.1	Dom.			18	15.5	Dom.		
	Hogna ferox	2	2.1	R			5	3.6	R			4	3.4	R		
	Geolycosa urbana	0	0				1	0.7	sr			0	0			
Salticidae	Unidentified	1	1.1	R	2.2	A				1.5	A	1	0.9	sr	4.3	A
	Phlegra flavipes	1	1.1	R			2	1.5	R			4	3.4	R		
Philodromidae	*Thanatus albini*	2	2.1	R	2.1	A	5	3.6	R	3.6	A	9	7.8	sd	7.8	A
Eutichuridae	*Cheiracanthium* isiacum	0	0				0	0		0		1	0.9	sr	0.9	A
Theridiidae	*Steatoda erigoniformis*	2	2.1	R	3.2	A	1	0.7	sr	2.9	A	10	8.6	sd	8.6	A
	Enoplognatha gemina	0	0				3	2.2	R			0	0			
	Kochiura aulica	1	1.1	R			0	0				0	0			
Gnaphosidae	Unidentified	1	1.1		7.4	A				3	A				2.6	A
	Zelotes laetus	0	0				2	1.5	R			3	2.6	R		
	Micaria dives	4	4.2	R			2	1.5	R			0	0			
	Trachyzelotes jaxartensis	2	2.1	R			0	0				0	0			
Dictynidae	*Lathys humilis*	0	0				1	0.7	sr			0	0			
Linyphiidae	Unidentified	2	2.1	R	6.4	A	1	0.7	sr	5.9	A	4	3.4	R	6.8	A
	Prinerigon evagans	1	1.1	R			0	0				0	0			
	Sengletus extricatus	0	0				2	1.5	R			2	1.7	R		
	Erigone sp.	0	0				2	1.5	R			0	0			
	G1	3	3.2	R			3	2.2	R			2	1.7	R		
Thomisidae	*Thomisus spinifer*	2	2.1	R	2.1	A	0	0				0	0			
Titanoecidae	*Nurscia albomaculata*	1	1.1	R	1.1	A	0	0				0	0			
	Σ	95					137					113				

Species richness

Among the 23 species of spiders collected during the study, 20 species of 7 families were recorded in organic system and 23 species of 10 families in conventional system. A total of 14 species had common occurrence in both plants. Families Dictynidae, Thomisidae and Titanoecidae were absent in land treated with compost as organic system.

Tables (1-2) show that family Lycosidae represented by 323 individuals with 3 egg sacs & 276 individuals with 2 egg sacs in organic and conventional system, respectively; it was the only dominant family, comprised 83.5 and 78.9% of the total catch in organic and conventional cultivation, respectively. Bengtsson *et al.* (2005) indicated this result which found that organic farming usually increases species richness, having an average of 301 higher species richness than conventional farming system; the same result was recorded by Schmidt *et al.* (2005) who recorded the higher spider densities in organic field which is favourable habitat for spiders. Also, Tahir & Butt (2009) found that Lycosidae was the only dominant family, comprised 77.37% of the total catch Moreover, Östman *et al.* (2003) indicated this result in which the organic management where agrochemical application prohibit diversity of spider and provide more complex and diverse physical medium which give spiders more protection from natural enemies and improve microhabitat as well. Also, Öberg (2007) indicated that organic practice adds diversity to the soil structure and increases the abundance of prey and in turn this abundance of spiders.

Frequency and abundance values

Tables (4-5) showed the frequency and abundance values of the most abundant spiders. Family Lycosidae was considered "Constant" according to Weis Fog system, in the two types of cultivations organic and conventional, occupied 83.5 and 78.9%, respectively; and also so considered "Constant" in the three cultivated plants Wormwood, Daisy and Egyptian mint. Members of this family: *W. fidelis* and *Pardosa* sp. ranges between "Eudominant" and "Dominant" according to Weigmann classification of dominance.

Our results agreed with Shuang-lin and Bo-ping (2006) who indicated that Lycosidae, was the dominant family and occupied more than 60% of individuals' community. Moreover, Rizk *et al.* (2012) indicated that members of Lycosidae were represented by three common species: *W. fidelis*, *Pardosa injucanda*, and *Pardosa* sp. and all their developmental structures were collected by pitfall traps below the four plants Egyptian mint, Castor bean, Roselle (karkadi), and Red pepper.

On the other hand, all the remaining families were "Accidental" while their members range between "Recedent" and "Subrecedent" except of *Zelotes laetus* of family Gnaphosidae in organic cultivation and *S. erigoniformis* of family Theridiidae in the conventional cultivation being "Subdominant". This result is in accordance with that of Eyre *et al.* (2008) who stated that linyphiid species prefer plants in conventional cultivation and larger lycosid, philodromid, and gnaphosid species prefer the organic cultivation.

Species diversity

Table (6) compares the biodiversity of collected spiders in different vegetations, organic and conventional cultivations, using Shannon-Wiener "H" and Simpson "S" Indices of diversity. The vegetations of different plants varied in their spider richness. The collected spiders in plants treated with compost was the highest (151 individuals) in daisy and Egyptian mint while in wormwood plants it was higher in conventional cultivation than organic.

According to Shannon-Wiener "H" Index, the wormwood of conventional cultivation recorded the highest value, 1.05 of 16 species and 8 families, while daisy of organic

cultivation recorded the smallest value, 0.57 of 13 species and 6 families, so we can say that wormwood plants had a higher diversity index and daisy had a lower diversity index. Similarly, the values calculated for other cultivation described the different species diversity index for each group.

Table 6. Estimation of Shannon-Wiener and Simpson Indices of spider diversity in lands of organic and traditional managements.

Type of index	Organic management			Traditional management		
	A	B	C	A	B	C
Shannon-Wiener Index	0.99	0.57	0.62	1.05	0.75	0.85
Simpson Index	0.55	0.82	0.73	0.55	0.69	0.63

A = Wormwood (*Artemisia* sp.), B = Daisy (*Leucanthemum vulgare*), C = Egyptian mint (*Mentha niliaca*).

According to Simpson Index, which reflected the measure of dominance, it was found that the daisy and Egyptian mint plants included the highest number of dominant species in organic cultivation recorded 132 & 129 individuals of lycosid members, respectively. Our results are in good agreement with Bettiol *et al.* (2002) who assumed that the number of collembolans found in the organic system was three times as high as that in the conventional system.

Similarity of species

Species richness of spiders collected from organic system (387 individuals) was greater than that of conventional system (350 individuals), while the number of spider species was greater in conventional (24 species) than that in organic (20 species). Among the 27 genera obtained, 24 species were caught from conventional land and 20 in organic land, and the common genera were 14 (Table 3). To allow a comparison between the two habitats, Sørensen's Quotient of similarity (QS) for the two communities was 0.67; it is concluded that the two communities are slightly different, as they recorded 64% of similarity.

Monthly fluctuation of spider population

Monthly counts of spiders collected from the organic and conventional cultivations, between October and first week of May, occurred in high abundance in March recorded 109 individuals with 3 egg sacs for the organic while respective numbers in conventional cultivation was 88 individuals with one egg sac.

Several authors have reported that the winter was the lowest abundance for spider while in summer the population density of spider increased; Rizk *et al.* (2012) indicated that spiders appeared in few numbers in early summer on the four different plants Egyptian mint, Castor bean, Roselle (Karkadi), and Red pepper and the population density gradually increased showing a peak in June. In general, this data indicated that spiders were active during summer months.

Conclusion

This study exposes that biodiversity of spider is impacted by different management strategies, organic and conventional. So, vegetation architecture and type of fertility are known to affect spider activity. The diversity indices account for some

species rare and others being common, they serve as variable tools that enable biologists to quantify diversity in a community and describe its numerical structure. We found in our study that there was considerably more activity in organic plots for most species with the least on the conventional plots. In general, spider abundance, were highest in the organic management plants while conventional cultivation plants had higher species diversity. These results go in line with Eyre *et al.* (2008) and in contrast to other studies.

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The spider fauna of Melendiz Mountains, Niğde, Turkey

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Abstract

Spider specimens were collected, during field studies, from Melendiz Mountains located in the province of Niğde of Turkey between June 2012 and July 2013. A total of 2631 adult specimens were studied, 129 spider species belong to 74 genera in 21 families were identified. *Agelescape dunini* Guseinov, Marusik & Koponen, 2005 of Family Agelenidae and *Euryopis laeta* (Westring, 1861) of Family Theridiidae are recorded for the first time from Turkey.

Keywords: Spiders, Araneae, Fauna, Melendiz Mountains, Turkey.

Introduction

Araneae is one of the most abundant orders in the world, consisting of about 45.400 species belonging to 114 families (World Spider Catalog, 2015). So far, 53 families, 330 genera and 1017 species of Araneae have been recorded from Turkey (Topçu *et al.*, 2005; Bayram *et al.*, 2014; Demir *et al.*, 2014). The aim of this study is to determine the areneofauna of Melendiz Mountains (Niğde) of Turkey.

Material and Methods

Spider specimens were collected from the study area between June 2012 and July 2013 in Melendiz Mountains (Niğde) of Turkey. The specimens were preserved in 70% ethanol. The identification was made by means of a SZX61 Olympus stereo-microscope. Examined specimens were deposited in the NUAM (Arachnology Museum of Niğde University, Niğde, Turkey). World distribution of all species follows World Spider Catalog (2015).

Results

A total of 2631 adult specimens were collected and identified. They are 129 species belong to 74 genera under 21 families. Among them, *Agelescape dunini* Guseinov, Marusik & Koponen, 2005 of Family Agelenidae, and *Euryopis laeta* (Westring, 1861) of Family Theridiidae are recorded for the first time from Turkey.

The greatest diversity was found in Family Gnaphosidae (34 species of 16 genera) followed by Family Thomisidae (19 species of 5 genera) and Family Salticidae (16 species of 9 genera).

A complete list of studied taxa with localities and dates of collecting are:

Family **Agelenidae** C.L. Koch, 1837

Agelena Walckenaer, 1805

Agelena orientalis C.L. Koch, 1837

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♂1♀); 07.VI.2013 (2♂1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 24.VII.2012 (1♂1♀); 08.VI.2013 (2♂). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 25.VII.2012 (1♂1♀); 09.VI.2013 (1♂2♀). Yeşilburç village - Kırkbayır village (38°02'03"N, 34°39'45"E), 1491m, 25.VII.2012 (1♂1♀); 10.VI.2013 (1♂1♀). Gebere (38°02'45"N, 34°38'20E), 1702m, 25.VII.2012 (1♂). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (1♂1♀); 07.VI.2013 (1♀). **World Distribution:** Italy to Central Asia, Iran.

Agelescape Levy, 1996

Agelescape caucasica Guseinov, Marusik & Koponen, 2005

Material examined: Melendiz 8 (38°06'32"N, 34°34'30"E), 2175m, 28.VIII.2012 (1♀); 01.XII.2012 (1♀). Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 29.VIII.2012 (1♀); 02.XII.2012 (1♀); Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 23.VII.2012 (2♀); 29.VIII.2012 (1♀); 03.XII.2012 (2♀); 09.VI.2013 (1♀). **World Distribution:** Greece, Azerbaijan.

Agelescape dunini Guseinov, Marusik & Koponen, 2005

Material examined: Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 23.VII.2012 (1♂); 28.VIII.2012 (2♂); 01.XII.2012 (1♂); 07.VI.2013 (1♂). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 25.VII.2012 (1♂); 30.VIII.2012 (1♂); 04.XII.2012 (1♂); 09.VI.2013 (1♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 26.VII.2012 (1♂); 30.VIII.2012 (2♂); 02.XII.2012 (1♂); 08.VI.2013 (1♂). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 24.VII.2012 (1♂); 29.VIII.2012 (1♂); 04.XII.2012 (1♂); 07.VI.2013 (1♂). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (2♂); 28.VIII.2012 (1♂); 01.XII.2012 (1♂); 07.VI.2013 (1♂). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 25.VII.2012 (2♂); 30.VIII.2012 (1♂); 01.XII.2012 (1♂); 07.VI.2013 (1♂). **World Distribution:** Azerbaijan.

Agelescape gideoni Levy, 1996

Material examined: Güresentepe (38°06'23"N, 34°36'36"E), 2254m, 23.VII.2012 (2♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 07.VI.2013 (1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); E07.VI.2013 (1♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 24.VII.2012 (2♀); 29.VIII.2012 (1♀); 02.XII.2012 (1♀); 08.VI.2013 (1♀). Taşlıca village (38°00'57"N, 34°39'42"E), 1378m, 25.VII.2012 (1♀); 30.VIII.2012 (1♀); 09.VI.2013 (1♀). Yeşilburç village - Kırkbayır village (38°01'49"N, 34°39'52"E), 1486m, 26.VII.2012 (1♀); 04.XII.2012 (1♀); 10.VI.2013 (1♀). Yeşilburç village - Kırkbayır village 2 (38°02'03"N, 34°39'45"E), 1491m, 03.XII.2012 (1♀); 09.VI.2013 (1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 25.VII.2012 (1♀); 29.VIII.2012 (2♀); 02.XII.2012 (1♀); 09.VI.2013 (1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 26.VII.2012 (1♀); 28.VIII.2012 (1♀). **World Distribution:** Turkey, Israel.

Tegenaria Latreille, 1804

Tegenaria argaeica (Nosek, 1905)

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂1♀); 07.VI.2013 (1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 24.VII.2012 (1♂1♀); 29.VIII.2012 (1♂1♀); 07.VI.2013 (1♂,2♀). Hacıabdullah (38°10'16"N, 34°37'53"E), 1503m, 25.VII.2012 (1♂,2♀); 30.VIII.2012 (2♂,1♀); 08.VI.2013 (1♀). Melendiz 3 (38°07'16"N, 34°36'40"E), 2139m, 26.VII.2012 (1♂1♀); 29.VIII.2012 (1♀); 09.VI.2013 (1♀). Melendiz 4 (38°07'28"N, 34°36'47"E), 2116m, 24.VII.2012 (1♀); 28.VIII.2012 (2♀). Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 25.VII.2012 (1♂); 29.VIII.2012 (1♂1♀); 08.VI.2013 (1♂3♀). Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 25.VII.2012 (1♀); 29.VIII.2012 (1♀); 07.VI.2013 (2♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 24.VII.2012 (1♂1♀); 30.VIII.2012 (1♂1♀); 09.VI.2013 (1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 24.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 23.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 10.VI.2013 (2♀). **World Distribution:** Turkey, Bulgaria.

Family **Araneidae** Clerck, 1757

Aculepeira Chamberlin & Ivie, 1942

Aculepeira armida (Savigny, 1825)

Material examined: Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 01.XII.2012 (7♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 02.XII.2012 (2♂3♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (5♀); 29.VIII.2012 (1♂3♀); 09.VI.2013 (4♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750 m 25.VII.2012 (6♀); 30.VIII.2012 (2♀); 07.VI.2013 (1♀). **World Distribution:** Palaearctic.

Aculepeira ceropegia (Walckenaer, 1802)

Material examined: Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (2♂1♀); 28.VIII.2012 (2♂4♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 24.VII.2012 (1♂1♀); 29.VIII.2012 (2♂1♀). Yeşilyurt village – Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 30.VIII.2012 (2♂1♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 25.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 09.VI.2013 (1♂1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 26.VII.2012 (2♂2♀); 28.VIII.2012 (2♂5♀); 10.VI.2013 (2♂1♀). **World Distribution:** Palaearctic.

Araniella Chamberlin & Ivie, 1942

Araniella cucurbitina (Clerck, 1757)

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♀); Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀). **World Distribution:** Palaearctic.

Argiope Savigny, 1825

Argiope lobata (Pallas, 1772)

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♀); Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Old World.

Larinioides Caporiacco, 1934

Larinioides cornutus (Clerck, 1757)

Material examined: Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 01.XII.2012 (5♂7♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 02.XII.2012 (2♂3♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 24.VII.2012 (5♂5♀); 28.VIII.2012 (1♂,3♀); 07.VI.2013 (3♂4♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750 m 23.VII.2012 (4♂6♀); 29.VIII.2012 (2♀); 10.VI.2013 (8♀). **World Distribution:** Holarctic.

Mangora O.P.-Cambridge, 1889

Mangora acalypha (Walckenaer, 1802)

Material examined: Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 28.VIII.2012 (1♀); 01.XII.2012 (1♀). **World Distribution:** Palaearctic.

Neoscona Simon, 1864

Neoscona adianta (Walckenaer, 1802)

Material examined: Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 28.VIII.2012 (1♂); 01.XII.2012 (1♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 30.VIII.2012 (1♂1♀); 03.XII.2012 (2♂). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 29.VIII.2012 (1♂); 02.XII.2012 (2♂). **World Distribution:** Palaearctic.

Zygiella F.O.P.-Cambridge, 1902

Zygiella x-notata (Clerck, 1757)

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (2♀); 28.VIII.2012 (1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (1♀); 29.VIII.2012 (1♂2♀). Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 30.VIII.2012 (1♀); 01.XII.2012 (1♀). **World Distribution:** Holarctic, Neotropical.

Family **Eutichuridae** Lehtinen, 1967

Cheiracanthium C.L. Koch, 1839

Cheiracanthium pennyi O.P.-Cambridge, 1873

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Palaearctic.

Family **Gnaphosidae** Pocock, 1898

Anagraphis Simon, 1893

Anagraphis pallens Simon, 1893

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 25.VII.2012 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♀); 09.VI.2013 (1♀). **World Distribution:** South Africa, Libya, Malta, Syria, Israel, Crete, Turkey, Iran.

Callilepis Westring, 1874

Callilepis cretica (Roewer, 1928)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♂1♀); 07.VI.2013 (1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 24.VII.2012 (1♂1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♀); 09.VI.2013 (1♂1♀). **World Distribution:** Macedonia, Greece, Crete, Turkey, Azerbaijan.

Callilepis nocturna (Linnaeus, 1758)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 07.VI.2013 (1♂1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 24.VII.2012 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♀); 08.VI.2013 (1♂1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (1♂). **World Distribution:** Palaearctic.

Cesonia Simon, 1893

Cesonia aspida Chatzaki, 2002

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 07.VI.2013 (1♂1♀). **World Distribution:** Crete, Turkey.

Civizelotes Senglet, 2012

Civizelotes caucasius (L. Koch, 1866)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♂2♀); 07.VI.2013 (3♂). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 24.VII.2012 (2♂2♀) 08.VI.2013 (1♂,2♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (4♂); 09.VI.2013 (3♂1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 26.VII.2012 (1♂2♀); 07.VI.2013 (3♂2♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (2♂2♀); 09.VI.2013 (1♂1♀). Çiftlik (38°09'29"N, 34°28'15"E), 1560 m 23.VII.2012 (2♀); 10.VI.2013 (2♂2♀). Çiftlik Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♂3♀); 09.VI.2013 (3♂2♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 24.VII.2012 (5♂); 09.VI.2013 (2♂1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 23.VII.2012 (1♂2♀); 10.VI.2013 (1♂). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 26.VII.2012 (1♂); 07.VI.2013 (1♂). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♂1♀); 09.VI.2013 (2♂1♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 24.VII.2012 (1♂3♀); 07.VI.2013 (1♂1♀). Taşlıca village, girişi (38°00'57"N, 34°39'42"E), 1378m, 25.VII.2012 (1♂1♀); 07.VI.2013 (2♂2♀). Yeşilburç village - Kırkbayır village 1 (38°01'49"N, 34°39'52"E), 1486m, 23.VII.2012 (5♂); 08.VI.2013 (1♂2♀). Yeşilburç village - Kırkbayır village 2 (38°02'03"N, 34°39'45"E), 1491m, 26.VII.2012 (1♂1♀); 07.VI.2013 (1♂2♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 23.VII.2012 (1♂3♀); 10.VI.2013 (3♂1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 23.VII.2012 (2♂2♀); 10.VI.2013 (2♂2♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 25.VII.2012 (1♂3♀); 07.VI.2013 (4♂). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (4♂5♀); 07.VI.2013 (3♂2♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (2♂2♀); 07.VI.2013 (3♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 24.VII.2012 (2♂2♀); 08.VI.2013 (1♂2♀). Gebere plateau 2 (N38°03'03", E34°37'27"), 1750m, 23.VII.2012 (1♂,2♀); 10.VI.2013 (3♂2♀). Yeşilburç village (38°01'06"N, 34°39'59"E), 1418m, 23.VII.2012 (1♂); 07.VI.2013 (1♂). Koyunlu town (37°59'25"N, 34°35'34"E), 1567m, 26.VII.2012 (1♂3♀); 10.VI.2013 (1♂2♀). Küçükköy village (37°59'56"N, 34°35'09"E), 1693m, 23.VII.2012 (1♂1♀); 09.VI.2013 (1♂1♀). Altunhisar, Tepeköy (37°57'27"N, 34°24'55"E), 1182m, 24.VII.2012 (3♂1♀); 07.VI.2013 (1♂1♀). Yeşilyurt village (37°59'01"N, E34°23'40"E), 1228m, 25.VII.2012 (4♂); 10.VI.2013 (3♂1♀). **World Distribution:** Europe to Central Asia.

Cryptodrassus Miller, 1943

Cryptodrassus creticus Chatzaki, 2002

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♀); 07.VI.2013 (3♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♀). **World Distribution:** Crete, Turkey.

Drassodes Westring, 1851

Drassodes bifidus Kovblyuk & Seyyar, 2009

Material examined: Melendiz 4 (38°07'28"N, 34°36'47"E), 2116m, 23.VII.2012 (3♂4♀); 28.VIII.2012 (2♂4♀); 01.XII.2012 (3♀); 19.IV.2013 (2♂); 10.V.2013 (2♂4♀); 07.VI.2013 (1♂4♀). Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 24.VII.2012 (3♂3♀); 29.VIII.2012 (2♂4♀); 01.XII.2012 (1♂6♀); 20.IV.2013 (2♂1♀); 11.V.2013 (1♂3♀); 09.VI.2013 (1♂4♀). Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 25.VII.2012 (2♂3♀); 29.VIII.2012 (1♂5♀); 03.XII.2012 (1♂1♀); 21.IV.2013 (1♂1♀); 12.V.2013 (1♂1♀); 09.VI.2013 (1♂1♀). Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 26.VII.2012; 28.VIII.2012 (1♂1♀); 02.XII.2012 (2♂,1♀); 22.IV.2013 (3♂1♀); 13.V.2013 (1♂1♀); 07.VI.2013 (1♂1♀). Melendiz 8 (38°06'32"N, 34°34'30"E), 2175m, 26.VII.2012 (3♂4♀); 30.VIII.2012 (2♂3♀); 04.XII.2012 (1♂,4♀); 22.IV.2013 (1♂1♀); 13.V.2013 (1♂1♀); 07.VI.2013 (1♂1♀). Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♂1♀); 19.IV.2013 (6♂5♀); 11.V.2013 (4♂1♀); 08.VI.2013 (1♂3♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 03.XII.2012 (1♂1♀); 19.IV.2013 (1♂3♀); 10.V.2013 (2♂1♀); 07.VI.2013 (1♂1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 24.VII.2012 (1♂1♀); 28.VIII.2012 (2♂1♀); 02.XII.2012 (1♂3♀);

22.IV.2013 (1♂1♀); 13.V.2013 (1♂1♀); 07.VI.2013 (3♂4♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 23.VII.2012 (1♂1♀); 29.VIII.2012 (3♂1♀); 03.XII.2012 (1♂4♀); 19.IV.2013 (1♂1♀); 10.V.2013 (1♀); 09.VI.2013 (1♂1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 26.VII.2012 (1♂1♀); 29.VIII.2012 (1♂1♀); 02.XII.2012 (1♂1♀); 21.IV.2013 (2♂); 11.V.2013 (1♂1♀); 07.VI.2013 (2♂1♀). **World Distribution:** Turkey.

Drassodes lacertosus (O.P.-Cambridge, 1872)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♂1♀); 07.VI.2013 (1♂). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♂1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 24.VII.2012 (2♂); 29.VIII.2012 (1♂1♀); 01.XII.2012 (4♂); 09.VI.2013 (1♂1♀). Gebere dam (38°03'03"N, 34°38'05"E), 1700m, 26.VII.2012 (2♂,1♀); 30.VIII.2012 (1♂2♀); 03.XII.2012 (1♂1♀); 09.VI.2013 (1♂1♀). **World Distribution:** Greece, Turkey, Israel, Syria.

Drassodes lapidosus (Walckenaer, 1802)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (3♂,1♀); 07.VI.2013 (2♂). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♂1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 24.VII.2012 (2♂); 29.VIII.2012 (2♂6♀); 03.XII.2012 (4♂); 09.VI.2013 (1♂5♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (2♂1♀); 30.VIII.2012 (3♂2♀); 01.XII.2012 (1♂1♀); 09.VI.2013 (1♂1♀). Melendiz 4 (38°07'28"N, 34°36'47"E), 2116m, 26.VII.2012 (3♂4♀); 28.VIII.2012 (2♂4♀); 01.XII.2012 (3♀); 19.IV.2013 (2♂); 10.V.2013 (2♂4♀); 07.VI.2013 (1♂4♀). Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 23.VII.2012 (3♂3♀); 29.VIII.2012 (2♂8♀); 04.XII.2012 (1♂,6♀); 20.IV.2013 (2♂1♀); 10.V.2013 (1♂3♀); 07.VI.2013 (1♂5♀). Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 26.VII.2012 (2♂3♀); 28.VIII.2012 (1♂5♀); 04.XII.2012 (1♂1♀); 19.IV.2013 (1♂1♀); 12.V.2013 (2♂1♀); 08.VI.2013 (1♂1♀). Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 25.VII.2012; 28.VIII.2012 (1♂1♀); 01.XII.2012 (2♂1♀); 20.IV.2013 (3♂1♀); 13.V.2013 (1♂1♀); 07.VI.2013 (1♂1♀). Melendiz 8 (38°06'32"N, 34°34'30"E), 2175m, 24.VII.2012 (3♂4♀); 28.VIII.2012 (2♂3♀); 01.XII.2012 (1♂4♀); 19.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 07.VI.2013 (2♂,5♀). Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 25.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 03.XII.2012 (1♂1♀); 22.IV.2013 (6♂5♀); 13.V.2013 (4♂1♀); 07.VI.2013 (1♂4♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (1♂1♀); 30.VIII.2012 (1♂1♀); 01.XII.2012 (1♂1♀); 20.IV.2013 (1♂3♀); 10.V.2013 (2♂1♀); 07.VI.2013 (1♂1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (2♂1♀); 02.XII.2012 (1♂3♀); 19.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 07.VI.2013 (3♂4♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 26.VII.2012 (1♂1♀); 30.VIII.2012 (3♂1♀); 02.XII.2012 (1♂4♀); 22.IV.2013 (1♂1♀); 12.V.2013 (1♀); 09.VI.2013 (1♂1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♂1♀); 29.VIII.2012 (1♂1♀); 01.XII.2012 (1♂1♀); 20.IV.2013 (3♂); 11.V.2013 (4♂1♀); 07.VI.2013 (2♂5♀). **World Distribution:** Palaearctic.

Drassodes lutescens (C.L. Koch, 1839)

Material examined: Bor, Okçu village (37°58'18"N, 34°30'51"E), 1671m, 01.XII.2012 (1♂). Bor, Okçu village - Fesleğen village (37°57'49"N, 34°33'22"E), 1452m, 01.XII.2012 (1♂). **World Distribution:** Mediterranean to Pakistan.

Drassodes pubescens (Thorell, 1856)

Material examined: Koyunlu town (37°59'25"N, 34°35'34"E), 1567m, 23.VII.2012 (2♀); 10.V.2013 (1♀); 07.VI.2013 (1♀). Küçükköy village (37°59'56"N, 34°35'09"E), 1693m; 19.IV.2013 (2♀); 10.V.2013 (1♀); 07.VI.2013 (1♀). **World Distribution:** Palaearctic.

Drassyllus Chamberlin, 1922

Drassyllus crimeaensis Kovblyuk, 2003

Material examined: Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Macedonia, Greece, Ukraine, Turkey, Russia, Azerbaijan.

Drassyllus praeficus (L. Koch, 1866)

Material examined: Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (2♂,1♀); 07.VI.2013 (2♂). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♂1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 23.VII.2012 (1♂1♀); 10.V.2013 (2♂); 07.VI.2013 (1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀); 07.VI.2013 (1♂1♀). **World Distribution:** Europe to Central Asia.

Gnaphosa Latreille, 1804

Gnaphosa dolosa Herman, 1879

Material examined: Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 01.XII.2012 (1♀). **World Distribution:** Palaearctic.

Gnaphosa opaca Herman, 1879

Material examined: Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 23.VII.2012 (1♀); 28.VIII.2012 (2♀); 01.XII.2012 (1♀); 07.VI.2013 (1♀). Melendiz 4 (38°07'28"N, 34°36'47"E), 2116m, 24.VII.2012 (4♀); 28.VIII.2012 (4♀); 02.XII.2012 (3♀); Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 23.VII.2012 (3♀); 30.VIII.2012 (6♀); 01.XII.2012 (6♀); Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 23.VII.2012 (3♀); 29.VIII.2012 (5♀); 03.XII.2012 (11♀); 08.VI.2013 (1♀). Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 26.VII.2012; 28.VIII.2012 (1♀); 02.XII.2012 (3♀); Melendiz 8 (38°06'32"N, 34°34'30"E), 2175m, 23.VII.2012 (4♀); 30.VIII.2012 (3♀); 01.XII.2012 (4♀); 09.VI.2013 (2♀). Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 28.VIII.2012 (1♀); 01.XII.2012 (5♀); 08.VI.2013 (4♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀); 03.XII.2012 (3♀); 09.VI.2013 (2♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 26.VII.2012 (1♀); 29.VIII.2012 (1♀); 01.XII.2012 (3♀); 09.VI.2013 (4♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 25.VII.2012 (2♀); 28.VIII.2012 (2♀); 01.XII.2012 (4♀); 10.VI.2013 (2♀). **World Distribution:** Europe to Central Asia.

Haplodrassus Chamberlin, 1922

Haplodrassus invalidus (O.P.-Cambridge, 1872)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (3♂); 07.VI.2013 (2♂). **World Distribution:** Spain, Corsica, Sicily, Italy, Turkey, Israel, Azerbaijan.

Haplodrassus morosus (O.P.-Cambridge, 1872)

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 19.IV.2013 (2♂1♀); 10.V.2013 (2♂1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 20.IV.2013 (1♂1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 20.IV.2013 (1♂1♀); 12.V.2013 (2♂1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 21.IV.2013 (3♂1♀); 13.V.2013 (2♂1♀). **World Distribution:** Greece, Turkey, Israel, Karakorum.

Haplodrassus signifer (C.L. Koch, 1839)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (3♂2♀); 07.VI.2013 (2♂1♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 25.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 26.VII.2012 (1♂2♀). Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 24.VII.2012 (3♀); 10.VI.2013 (2♀). **World Distribution:** Holarctic.

Micaria Westring, 1851

Micaria albovittata (Lucas, 1846)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 24.VII.2012 (1♀); 28.VIII.2012 (2♀); 07.VI.2013 (1♀). Bor, Balcı Village (37°58'25"N, 34°27'48"E), 1534m, 26.VII.2012 (2♀); 29.VIII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Palaearctic.

Micaria bosmansi Kovblyuk & Nadolny, 2008

Material examined: Melendiz 2 (38°07'45"N, 34°36'39"E), 2067m, 23.VII.2012 (2♀). **World Distribution:** Ukraine.

Micaria coarctata (Lucas, 1846)

Material examined: Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 23.VII.2012 (2♀). **World Distribution:** Mediterranean to Central Asia.

Micaria formicaria (Sundevall, 1831)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 26.VII.2012 (1♂2♀); 08.VI.2013 (2♂2♀). Yeşilburç village (38°01'06"N, 34°39'59"E), 1418m, 23.VII.2012 (1♂2♀); 09.VI.2013 (2♀). **World Distribution:** Palaearctic.

Nomisia Dalmas, 1921

Nomisia aussereri (L. Koch, 1872)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♀); 01.XII.2012 (2♀). Melendiz 2 (38°07'45"N, 34°36'39"E), 2067 m 29.VIII.2012 (1♀); 02.XII.2012 (1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 30.VIII.2012 (2♀); 03.XII.2012 (2♀). Koyunlu town (37°59'25"N, 34°35'34"E), 1567m, 28.VIII.2012 (1♀); 04.XII.2012 (2♀). Küçükköy village (37°59'56"N, 34°35'09"E), 1693m, 28.VIII.2012 (3♀); 03.XII.2012 (2♀). **World Distribution:** Palaearctic.

Nomisia conigera (Spassky, 1941)

Material examined: Yeşilyurt village (37°59'01"N, 34°23'40"E), 1228m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Turkey to Central Asia.

Nomisia exornata (C.L. Koch, 1839)

Material examined: Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 23.VII.2012 (1♂2♀). Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♂3♀); 07.VI.2013 (2♀). **World Distribution:** Europe to Central Asia.

Nomisia ripariensis (O.P.-Cambridge, 1872)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (3♂3♀); 10.V.2013 (1♂3♀); 07.VI.2013 (1♂2♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 24.VII.2012 (1♂,3♀); 09.VI.2013 (3♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (2♂1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 26.VII.2012 (1♂2♀); 13.V.2013 (1♂); 10.VI.2013 (1♂1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (3♂2♀); 07.VI.2013 (1♂3♀). **World Distribution:** Bulgaria, Greece, Crete to Azerbaijan.

Parasyrisca Schenkel, 1963

Parasyrisca turkenica Ovtsharenko, Platnick & Marusik, 1995

Material examined: Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 07.VI.2013 (1♀). **World Distribution:** Turkey.

Phaeocedus Simon, 1893

Phaeocedus braccatus (L. Koch, 1866)

Material examined: Melendiz 2 (38°07'45"N, 34°36'39"E), 1806m, 28.VIII.2012 (1♀); 10.V.2013 (1♂2♀); 07.VI.2013 (1♂1♀). **World Distribution:** Palaearctic.

Poecilochroa Westring, 1874

Poecilochroa variana (C.L. Koch, 1839)

Material examined: Melendiz 3 (38°07'45"N, 34°36'39"E), 2139m, 10.V.2013 (1♀); 07.VI.2013 (3♀). **World Distribution:** Europe to Central Asia.

Pterotricha Kulczyński, 1903

Pterotricha kochi (O.P.-Cambridge, 1872)

Material examined: Bor, Balcı Plateau (37°58'28"N, 34°27'58"E), 1600m, 10.V.2013 (1♀); 07.VI.2013 (1♀). **World Distribution:** Turkey, Lebanon, Syria, Israel.

Zelotes Gistel, 1848

Zelotes cingarus (O.P.-Cambridge, 1874)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♀) 07.VI.2013 (2♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀); 10.VI.2013 (1♀). **World Distribution:** Turkey, Macedonia, Bulgaria, Crete, Greece, Corfu Island, Tajikistan.

Zelotes longipes (L. Koch, 1866)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 25.VII.2012 (1♂1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 26.VII.2012 (2♂); 10.VI.2013 (1♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 23.VII.2012 (1♂); 08.VI.2013 (1♂). **World Distribution:** Palaearctic.

Zelotes metellus Roewer, 1928

Material examined: Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (1♂). Altunhisar, Tepeköy (37°57'27"N, 34°24'55"E), 1182m, 24.VII.2012 (1♂). **World Distribution:** Greece to Iran, Israel.

Zelotes subterraneus (C.L. Koch, 1833)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 28.VIII.2012 (1♂). **World Distribution:** Palaearctic.

Family **Linyphiidae** Blackwall, 1859

Frontinellina van Helsdingen, 1969

Frontinellina frutetorum (C.L. Koch, 1834)

Material examined: Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♂); 07.VI.2013 (1♂). **World Distribution:** Palaearctic.

Lepthyphantes Menge, 1866

Lepthyphantes leprosus (Ohlert, 1865)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 28.VIII.2012 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (1♀); 30.VIII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 26.VII.2012 (1♀); 28.VIII.2012 (1♀). **World Distribution:** Holarctic, Chile.

Megalepthyphantes Wunderlich, 1994

Megalepthyphantes nebulosus (Sundevall, 1830)

Material examined: Çiftlik (38°09'29"N, 34°28'15"E), 1560m, 28.VIII.2012 (2♀); 01.XII.2012 (1♀); 19.IV.2013 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (1♀); 29.VIII.2012 (1♀); 04.XII.2012 (1♀); 10.VI.2013 (1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 29.VIII.2012 (2♀); 03.XII.2012 (1♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 23.VII.2012 (1♀); 30.VIII.2012 (1♀); 02.XII.2012 (1♀). Yeşilburç village - Kırkbayır village 1 (38°02'03"N, 34°39'45"E), 1491m, 23.VII.2012 (1♀); 28.VIII.2012 (2♀); 01.XII.2012 (1♀); 10.VI.2013 (1♀). **World Distribution:** Holarctic.

Neriene Blackwall, 1833

Neriene peltata (Wider, 1834)

Material examined: Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 28.VIII.2012 (2♂6♀). **World Distribution:** Palaearctic, Greenland.

Family **Liocranidae** Simon, 1897

Mesiotelus Simon, 1897

Mesiotelus scopensis Drensky, 1935

Material examined: Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 23.VII.2012 (1♀); 01.XII.2012 (1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 26.VII.2012 (1♀). **World Distribution:** Greece, Bulgaria, Macedonia, Iran.

Family **Lycosidae** Sundevall, 1833

Alopecosa Simon, 1885

Alopecosa accentuata (Latreille, 1817)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 19.IV.2013 (2♂); 10.V.2013 (1♂). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 19.IV.2013 (1♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 20.IV.2013 (1♂). **World Distribution:** Palaearctic.

Alopecosa cursor (Hahn, 1831)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 19.IV.2013 (2♂2♀); 10.V.2013 (1♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 19.IV.2013 (3♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 20.IV.2013 (2♂4♀); 22.IV.2013 (3♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 19.IV.2013 (2♂4♀). **World Distribution:** Palaearctic.

Alopecosa pulverulenta (Clerck, 1757)

Material examined: Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 19.IV.2013 (2♂). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 21.IV.2013 (1♂). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 22.IV.2013 (3♂); 10.V.2013 (2♂). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 19.IV.2013 (2♂); 13.V.2013 (3♂); 07.VI.2013 (1♂). **World Distribution:** Palaearctic.

Hogna Simon, 1885

Hogna radiata (Latreille, 1817)

Material examined: Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (5♀); Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 23.VII.2012 (2♀); 07.VI.2013 (1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 24.VII.2012 (3♀); 09.VI.2013 (4♀). Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 26.VII.2012 (2♀); 28.VIII.2012 (4♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 23.VII.2012 (5♀); 29.VIII.2012 (1♀). **World Distribution:** Central Europe to Central Asia, Central Africa.

Lycosa Latreille, 1804

Lycosa praegrandis C.L. Koch, 1836

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (2♀); 28.VIII.2012 (1♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 25.VII.2012 (3♀); 29.VIII.2012 (1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 30.VIII.2012 (2♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 26.VII.2012 (1♀); 28.VIII.2012 (1♀). **World Distribution:** Greece to Central Asia.

Pardosa C.L. Koch, 1847

Pardosa agrestis (Westring, 1861)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (7♀); 28.VIII.2012 (2♂7♀); 07.VI.2013 (5♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 24.VII.2012 (8♀); 28.VIII.2012 (10♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 25.VII.2012 (2♂6♀); 98.VIII.2012 (7♀); 09.VI.2013 (3♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 23.VII.2012 (7♀); 28.VIII.2012 (7♀); 10.VI.2013 (1♂6♀). **World Distribution:** Palaearctic.

Pardosa agricola (Thorell, 1856)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀); 10.VI.2013 (1♀). Altunhisar, Tepeköy (37°57'27"N, 34°24'55"E), 1182m, 26.VII.2012 (1♀); 08.VI.2013 (1♀); 25.VII.2012 (1♀). **World Distribution:** Europe to Kazakhstan.

Pardosa proxima (C.L. Koch, 1847)

Material examined: Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (3♀); 28.VIII.2012 (2♀). Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 24.VII.2012 (2♀); 28.VIII.2012 (4♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 25.VII.2012 (1♀); 29.VIII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (2♀); 30.VIII.2012 (1♀). Yeşilyurt village (38°01'00"N, 34°23'45"E), 1391m, 26.VII.2012 (2♀); 98.VIII.2012 (2♀); 01.XII.2012 (1♀). **World Distribution:** Palaearctic, Canary Islands, Azores.

Piratula Roewer, 1960

Piratula latitans (Blackwell 1841)

Material examined: Yeşilyurt village - Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 28.VIII.2012 (7♀). **World Distribution:** Europe to Azerbaijan.

Trochosa C.L. Koch, 1847

Trochosa hispanica Simon, 1870

Material examined: Yeşilyurt village - Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 28.VIII.2012 (1♀). **World Distribution:** Mediterranean to Central Asia, Iran.

Trochosa spinipalpis (F.O.P.-Cambridge, 1895)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (1♀); 28.VIII.2012 (2♀). **World Distribution:** Palaearctic.

Family **Miturgidae** Simon, 1886

Zora C.L. Koch, 1847

Zora spinimana (Sundevall, 1833)

Material examined: Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (1♀). **World Distribution:** Palaearctic.

Family **Oecobiidae** Blackwall, 1862

Oecobius Lucas, 1846

Oecobius rhodiensis Kritscher 1966

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂). **World Distribution:** Greece, Crete, Turkey.

Uroctea Dufour, 1820

Uroctea durandi (Latreille, 1809)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (2♀); 28.VIII.2012 (3♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 24.VII.2012 (1♂1♀); 29.VIII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 25.VII.2012 (1♂2♀); 29.VIII.2012 (1♀). Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 25.VII.2012 (1♂1♀); 30.VIII.2012 (1♂1♀); 03.XII.2012 (1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 26.VII.2012 (1♂1♀); 29.VIII.2012 (1♂1♀); 04.XII.2012 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (1♂1♀); 01.XII.20123 (1♂2♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 26.VII.2012 (1♂); 28.VIII.2012 (1♂1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 25.VII.2012 (2♀); 30.VIII.2012 (1♀); 03.XII.2012 (1♂1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 26.VII.2012 (1♀);

28.VIII.2012 (1♂1♀); 03.XII.2012 (1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 23.VII.2012 (1♂1♀). **World Distribution:** Mediterranean.

Family **Oxyopidae** Thorell, 1870

Oxyopes Latreille, 1804

Oxyopes lineatus Latreille, 1806

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (2♀); 28.VIII.2012 (1♀). Yeşilyurt village - Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 230.VIII.2012 (3♀). **World Distribution:** Palaearctic.

Oxyopes ramosus (Martini & Goeze, 1778)

Material examined: Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 23.VII.2012 (2♂2♀); 28.VIII.2012 (2♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (2♀); 30.VIII.2012 (1♀); 07.VI.2013 (2♂2♀). **World Distribution:** Palaearctic.

Family **Palpimanidae** Thorell, 1870

Palpimanus Dufour, 1820

Palpimanus uncatus Kulczyński, 1909

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂); 01.XII.2012 (1♂1♀); 19.IV.2013 (1♂2♀); 10.V.2013 (2♀); 07.VI.2013 (1♂1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 24.VII.2012 (2♂1♀); 28.VIII.2012 (1♂1♀); 02.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 10.V.2013 (1♀); 08.VI.2013 (1♂1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 25.VII.2012 (3♀); 30.VIII.2012 (1♂1♀); 03.XII.2012 (1♂1♀); 20.IV.2013 (1♂1♀); 11.V.2013 (1♂1♀); 09.VI.2013 (1♂1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (1♂); 01.XII.2012 (1♀); 19.IV.2013 (1♀); 12.V.2013 (1♂1♀); 10.VI.2013 (1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂); 03.XII.2012 (1♀); 19.IV.2013 (1♂1♀); 10.V.2013 (2♂1♀); 07.VI.2013 (1♂1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 25.VII.2012 (1♀); 29.VIII.2012 (1♀); 01.XII.2012 (2♀); 19.IV.2013 (1♂1♀); 14.V.2013 (1♂2♀); 08.VI.2013 (1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀); 03.XII.2012 (2♀); 21.IV.2013 (1♂1♀); 11.V.2013 (2♀); 07.VI.2013 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (3♂1♀); 28.VIII.2012 (1♂1♀); 03.XII.2012 (1♀); 21.IV.2013 (1♂1♀); 13.V.2013 (1♀); 07.VI.2013 (1♀). Güresentepe 2 (38°06'00"N, 34°36'51"E), 2209m, 26.VII.2012 (1♂3♀); 29.VIII.2012 (1♀); 01.XII.2012 (1♂1♀); 20.IV.2013 (2♂1♀); 13.V.2013 (3♀); 07.VI.2013 (1♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 23.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 11.V.2013 (1♀); 09.VI.2013 (1♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 19.IV.2013 (1♂1♀); 13.V.2013 (1♀); 08.VI.2013 (1♂1♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 23.VII.2012 (1♂3♀); 28.VIII.2012 (1♂); 01.XII.2012 (1♀); 20.IV.2013 (1♀); 13.V.2013 (3♂1♀); 07.VI.2013 (2♂2♀). Taşlıca village (38°00'57"N, 34°39'42"E), 1378m, 23.VII.2012 (1♂1♀); 30.VIII.2012 (1♀); 01.XII.2012 (1♀); 22.IV.2013 (1♀); 13.V.2013 (1♂2♀); 07.VI.2013 (1♂1♀). Yeşilburç village - Kırkbayır village (38°01'49"N, 34°39'52"E), 1486m, 24.VII.2012 (1♀); 29.VIII.2012 (1♀); 02.XII.2012 (1♀); 19.IV.2013 (2♂1♀); 10.V.2013 (1♂4♀); 07.VI.2013 (1♀). Yeşilburç village - Kırkbayır village (38°02'03"N, 34°39'45"E), 1491m, 25.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 03.XII.2012 (1♀); 20.IV.2013 (1♀); 10.V.2013 (1♀); 07.VI.2013 (1♂1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 24.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 04.XII.2012 (1♂3♀); 19.IV.2013 (1♀); 12.V.2013 (1♂1♀); 07.VI.2013 (1♂1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 19.IV.2013 (1♀); 11.V.2013 (3♂3♀); 07.VI.2013 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 19.IV.2013 (4♂1♀); 12.V.2013 (1♂1♀); 07.VI.2013 (1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 23.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 21.IV.2013 (1♀); 10.V.2013 (1♂1♀); 08.VI.2013 (1♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (1♀);

29.VIII.2012 (1♀); 02.XII.2012 (1♀); 21.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 09.VI.2013 (2♂1♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (1♀); 30.VIII.2012 (1♂1♀); 03.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 12.V.2013 (1♀); 07.VI.2013 (1♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 23.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 22.IV.2013 (1♂1♀); 10.V.2013 (1♀); 07.VI.2013 (3♀). Yeşilburç village (38°01'06"N, 34°39'59"E), 1418m, 23.VII.2012 (1♀); 28.VIII.2012 (2♂); 03.XII.2012 (1♀); 19.IV.2013 (1♀); 11.V.2013 (1♂1♀); 08.VI.2013 (1♀). Koyunlu town (37°59'25"N, 34°35'34"E), 1567m, 24.VII.2012 (1♀); 30.VIII.2012 (1♀); 01.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 13.V.2013 (3♂); 10.VI.2013 (1♂1♀). Küçükköy village (37°59'56"N, 34°35'09"E), 1693m, 23.VII.2012 (1♂1♀); 29.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 22.IV.2013 (1♂1♀); 10.V.2013 (2♂1♀); 09.VI.2013 (1♀). Altunhisar, Tepeköy 1 (37°57'27"N, 34°24'55"E), 1182m, 23.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); 19.IV.2013 (1♀); 11.V.2013 (1♂2♀); 07.VI.2013 (4♀). Altunhisar, Tepeköy 2 (37°58'51"N, 34°25'15"E), 1328m, 26.VII.2012 (1♀); 30.VIII.2012 (1♀); 01.XII.2012 (1♂1♀); 20.IV.2013 (3♂); 12.V.2013 (1♀); 07.VI.2013 (1♂1♀). Karanlıkdere village (37°59'42"N, 34°25'29"E), 1426m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♂1♀); 03.XII.2012 (1♀); 19.IV.2013 (1♂1♀); 11.V.2013 (1♀); 07.VI.2013 (4♀). Yeşilyurt village (37°59'01"N, 34°23'40"E), 1228m, 23.VII.2012 (1♀); 30.VIII.2012 (3♂1♀); 03.XII.2012 (1♀); 19.IV.2013 (1♀); 11.V.2013 (1♂1♀); 09.VI.2013 (1♂2♀). Yeşilyurt village (38°01'00"N, 34°23'45"E), 1391m, 25.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 02.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 13.V.2013 (1♂1♀); 07.VI.2013 (1♀). Yeşilyurt village - Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 24.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 19.IV.2013 (1♀); 12.V.2013 (1♀); 07.VI.2013 (2♂2♀). Yeşilyurt village - Çiftlik 2 (38°02'45"N, 34°23'48"E), 1621m, 23.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 03.XII.2012 (1♀); 20.IV.2013 (1♂); 13.V.2013 (1♀); 07.VI.2013 (1♀). Bor, Akbaş village (37°56'37"N, 34°25'51"E), 1147m, 23.VII.2012 (3♂1♀); 30.VIII.2012 (1♀); 01.XII.2012 (1♀); 20.IV.2013 (1♂1♀); 10.V.2013 (1♀); 09.VI.2013 (1♂1♀). Bor, Okçu village 1 (37°56'33"N, 34°32'07"E), 1417m, 23.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 02.XII.2012 (1♂1♀); 19.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 08.VI.2013 (5♂). Bor, Okçu village 2 (37°58'18"N, 34°30'51"E), 1671m, 23.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 03.XII.2012 (1♀); 20.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 07.VI.2013 (1♂). Bor, Okçu village - Fesleğen village (37°57'49"N, 34°33'22"E), 1452m, 26.VII.2012 (1♀); 28.VIII.2012 (4♀); 03.XII.2012 (1♂1♀); 22.IV.2013 (1♂1♀); 10.V.2013 (1♂1♀); 07.VI.2013 (3♂1♀). Bor, Fesleğen village 1 (37°59'32"N, 34°33'21"E), 1661m, 25.VII.2012 (3♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♂); 19.IV.2013 (1♂1♀); 11.V.2013 (2♀); 07.VI.2013 (1♂1♀). Bor, Fesleğen village 2 (38°00'11"N, 34°32'59"E), 1787m, 23.VII.2012 (1♀); 30.VIII.2012 (1♂4♀); 01.XII.2012 (1♀); 22.IV.2013 (1♀); 10.V.2013 (3♂1♀); 07.VI.2013 (1♀). **World Distribution:** Egypt, Turkey, Greece.

Family **Philodromidae** Thorell, 1870

Philodromus Walckenaer, 1826

Philodromus cespitum (Walckenaer, 1802)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♂1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 01.XII.2012 (2♀). **World Distribution:** Holarctic.

Pulchellodromus Wunderlich, 2012

Pulchellodromus pulchellus **(**Lucas, 1846)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 28.VIII.2012 (2♀). **World Distribution:** Mediterranean.

Thanatus C.L. Koch, 1837

Thanatus atratus Simon, 1875

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 24.VII.2012 (2♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀). Güresentepe 1

(38°06'19"N, 34°37'04"E), 2157m, 26.VII.2012 (1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 25.VII.2012 (1♀). **World Distribution:** Palaearctic.

Thanatus formicinus (Clerck, 1757)

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (2♀); 07.VI.2013 (1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 24.VII.2012 (1♀); 09.VI.2013 (2♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 28.VIII.2012 (1♀); Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 03.XII.2012 (3♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 29.VIII.2012 (1♀); 01.XII.2012 (1♀). **World Distribution:** Holarctic.

Thanatus oblongiusculus (Lucas, 1846)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (2♂,1♀); 08.VI.2013 (1♂1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 26.VII.2012 (1♂,2♀); 07.VI.2013 (1♂1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 24.VII.2012 (2♂6♀); 07.VI.2013 (1♂1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (17♂4♀); 09.VI.2013 (2♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 26.VII.2012 (8♀). **World Distribution:** Palaearctic.

Thanatus pictus L. Koch, 1881

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 03.XII.2012 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 30.VIII.2012 (1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 28.VIII.2012 (6♂1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 29.VIII.2012 (4♂1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 04.XII.2012 (4♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 01.XII.2012 (3♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 25.VII.2012 (5♀). **World Distribution:** Palaearctic.

Thanatus vulgaris Simon, 1870

Material examined: Güresentepe 1 (38°06'19"N, 34°37'04E), 2157m, 23.VII.2012 (1♀). **World Distribution:** Holarctic.

Family **Pholcidae** C.L. Koch, 1850

Hoplopholcus Kulczyński, 1908

Hoplopholcus longipes (Spassky, 1934)

Material examined: Çiftlik (38°09'29"N, 34°28'15"E), 1560m, 28.VIII.2012 (1♂2♀). **World Distribution:** Turkey, Russia, Georgia.

Pholcus Walckenaer, 1805

Pholcus turcicus Wunderlich, 1980

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 28.VIII.2012 (1♂1♀). **World Distribution:** Turkey.

Family **Phrurolithidae B**anks, 1892

Phrurolithus C.L. Koch, 1839

Phrurolithus festivus (C.L. Koch, 1835)

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 23.VII.2012 (1♂). **World Distribution:** Palaearctic.

Family **Salticidae** Blackwall, 1841

Chalcoscirtus Bertkau, 1880

Chalcoscirtus infimus (Simon, 1868)

Material examined: Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♀). **World Distribution:** Southern, Central Europe to Central Asia.

Chalcoscirtus nigritus (Thorell, 1875)

Material examined: Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 23.VII.2012 (1♂); 07.VI.2013 (1♂). **World Distribution:** Palaearctic.

Cyrba Simon, 1876

Cyrba algerina (Lucas, 1846)

Material examined: Yeşilyurt village (38°01'00"N, 34°23'45"E), 1391m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Canary Islands to Central Asia.

Euophrys C.L. Koch, 1834

Euophrys frontalis (Walckenaer, 1802)

Material examined: Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (1♀); 07.VI.2013 (1♂). **World Distribution:** Palaearctic.

Heliophanus C.L. Koch, 1833

Heliophanus dampfi Schenkel, 1923

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 07.VI.2013 (1♂). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 25.VII.2012 (1♀); 09.VI.2013 (1♂). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 24.VII.2012 (1♂1♀); 10.VI.2013 (2♂1♀). **World Distribution:** Europe, Russia.

Heliophanus dubius C.L. Koch, 1835

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (1♀); 09.VI.2013 (1♀). **World Distribution:** Palaearctic.

Heliophanus edentulus Simon, 1871

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 01.XII.2012 (1♂). **World Distribution:** Mediterranean to Iran, Nigeria.

Heliophanus flavipes (Hahn, 1832)

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (1♂). Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 25.VII.2012 (1♂); 29.VIII.2012 (1♂). **World Distribution:** Palaearctic.

Heliophanus lineiventris Simon, 1868

Material examined: Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 19.IV.2013 (1♂); 10.V.2013 (3♂). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 21.IV.2013 (3♂); 13.V.2013 (1♂). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 20.IV.2013 (3♂); 12.V.2013 (2♂). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 20.IV.2013 (2♂); 10.V.2013 (6♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 19.IV.2013 (5♂); 11.V.2013 (2♂). **World Distribution:** Palaearctic.

Pellenes Simon, 1876

Pellenes geniculatus (Simon, 1868)

Material examined: Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Southern Palaearctic, Africa, introduced in Belgium.

Philaeus Thorell, 1869

Philaeus chrysops (Poda, 1761)

Material examined: Bor, Akbaş village (37°56'37"N, 34°25'51"E), 1147m, 23.VII.2012 (1♂); 07.VI.2013 (1♂2♀). Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 24.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 09.VI.2013 (2♂1♀). Bor, Balcı village (37°58'25"N,

34°27'48"E), 1534m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 07.VI.2013 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 25.VII.2012 (1♂1♀); 10.VI.2013 (1♂2♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 23.VII.2012 (2♂). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 26.VII.2012 (1♀); 29.VIII.2012 (1♂); 07.VI.2013 (1♂1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀); 30.VIII.2012 (1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 23.VII.2012 (1♀); 28.VIII.2012 (1♂1♀); 08.VI.2013 (2♂1♀). Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 24.VII.2012 (1♂1♀); 28.VIII.2012 (1♀); 08.VI.2013 (1♂1♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 23.VII.2012 (1♂); 10.VI.2013 (1♀). Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 24.VII.2012 (1♂1♀); 07.VI.2013 (1♀). Gebere plateau 2 (38°03'03"N, 34°37'27"E), 1750m, 23.VII.2012 (1♀); b 09.VI.2013 (1♂1♀). **World Distribution:** Palaearctic.

Phlegra Simon, 1876

Phlegra cinereofasciata (Simon, 1868)

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 19.IV.2013 (3♀); 10.V.2013 (1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 20.IV.2013 (3♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 21.IV.2013 (3♀); 13.V.2013 (1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 19.IV.2013 (2♀); 11.V.2013 (2♀). **World Distribution:** France to Central Asia.

Phlegra fasciata (Hahn, 1826)

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (1♂). **World Distribution:** Palaearctic.

Phlegra lineata (C.L. Koch, 1846)

Material examined: Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 19.IV.2013 (3♂); 10.V.2013 (1♂). **World Distribution:** Southern Europe, Turkey, Syria.

Pseudeuophrys Dahl, 1912

Pseudeuophrys lanigera (Simon, 1871)

Material examined: Gebere plateau 1 (38°03'03"N, 34°37'14"E), 1771m, 23.VII.2012 (4♀); 07.VI.2013 (1♀). **World Distribution:** Europe, Russia.

Salticus Latreille, 1804

Salticus scenicus (Clerck, 1757)

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 07.VI.2013 (1♀). Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀). **World Distribution:** Holarctic.

Family **Scytodidae** Blackwall, 1864

Scytodes Latreille, 1804

Scytodes thoracica (Latreille, 1802)

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂1♀); 10.V.2013 (1♀); 07.VI.2013 (2♂1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (1♂1♀); 29.VIII.2012 (1♂); 07.VI.2013 (2♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 26.VII.2012 (2♀); 09.VI.2013 (1♂2♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♂1♀); 10.VI.2013 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 25.VII.2012 (1♂); 08.VI.2013 (3♂1♀). **World Distribution:** Holarctic, Pacific Islands.

Family **Tetragnathidae** Menge, 1866

Tetragnatha Latreille, 1804

Tetragnatha obtusa C.L. Koch, 1837

Material examined: Yeşilburç village - Kırkbayır village (38°02'03"N, 34°39'45"E), 1491m, 23.VII.2012 (4♂3♀); 28.VIII.2012 (3♂5♀); 07.VI.2013 (2♂6♀). **World Distribution:** Palaearctic.

Family **Theridiidae** Sundevall, 1833

Asagena Sundevall, 1833

Asagena phalerata (Panzer, 1801)

Material examined: Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (2♀); 07.VI.2013 (1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 24.VII.2012 (2♀); 28.VIII.2012 (1♀); 08.VI.2013 (1♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 25.VII.2012 (1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 23.VII.2012 (2♀); 08.VI.2013 (2♀). Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 26.VII.2012 (2♀); 07.VI.2013 (1♀). **World Distribution:** Palaearctic.

Cryptachaea Archer, 1946

Cryptachaea riparia (Blackwall, 1834)

Material examined: Altunhisar - Çiftlik 2 (38°04'27"N, 34°24'39"E), 1778m, 23.VII.2012 (1♀). **World Distribution:** Palaearctic.

Enoplognatha Pavesi, 1880

Enoplognatha oelandica (Thorell, 1875)

Material examined: Yeşilburç village - Kırkbayır village (38°02'03"N, 34°39'45"E), 1491m, 28.VIII.2012 (2♂). **World Distribution:** Palaearctic.

Enoplognatha thoracica (Hahn, 1833)

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (2♀); 07.VI.2013 (1♂3♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 24.VII.2012 (4♀); 07.VI.2013 (2♀). Çiftlik, Azatlı village (38°09'29"N, 34°31'36"E), 1638m, 25.VII.2012 (2♂4♀); 09.VI.2013 (1♂3♀). **World Distribution:** Holarctic.

Episinus Walckenaer, in Latreille, 1809

Episinus truncatus Latreille, 1809

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 25.VII.2012 (1♀); 28.VIII.2012 (2♀). **World Distribution:** Palaearctic.

Euryopis Menge, 1868

Euryopis laeta (Westring, 1861)

Material examined: Yeşilyurt village - Çiftlik 1 (38°01'35"N, 34°23'57"E), 1490m, 23.VII.2012 (2♀); 28.VIII.2012 (2♀). **World Distribution:** Europe, Tunisia to Tajikistan.

Steatoda Sundevall, 1833

Steatoda albomaculata (De Geer, 1778)

Material examined: Melendiz 4 (38°07'28"N, 34°36'47"E), 2116m, 23.VII.2012 (1♀); 07.VI.2013 (1♀). **World Distribution:** Cosmopolitan.

Steatoda paykulliana (Walckenaer, 1805)

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂1♀); 01.XII.2012 (1♀); Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (1♂); 02.XII.2012 (2♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (2♀); 03.XII.2012 (1♂1♀). Bor, Balcı village (37°58'25"N, 34°27'48"E), 1534m, 26.VII.2012 (1♂1♀); 01.XII.2012 (1♀). Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 25.VII.2012 (1♂); 02.XII.2012 (2♂1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m,

23.VII.2012 (1♀); 28.VIII.2012 (2♀). Yeşilburç village - Kırkbayır village (38°02'03"N, 34°39'45"E), 1491m, 24.VII.2012 (1♀); 30.VIII.2012 (1♂2♀); 01.XII.2012 (1♀). Kırkbayır village 1 (38°02'05"N, 34°39'26"E), 1557m, 23.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); 04.XII.2012 (1♂1♀); 07.VI.2013 (2♂2♀). **World Distribution:** Europe, Mediterranean to Central Asia.

Family **Thomisidae** Sundevall, 1833

Heriaeus Simon, 1875

Heriaeus graminicola (Doleschall, 1852)

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 28.VIII.2012 (2♀). **World Distribution:** Europe to Central Asia.

Heriaeus simoni Kulczyński, 1903

Material examined: Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 23.VII.2012 (1♂); 28.VIII.2012 (2♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 25.VII.2012 (2♀). **World Distribution:** Palaearctic.

Misumena Latreille, 1804

Misumena vatia (Clerck, 1757)

Material examined: Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (2♀); 07.VI.2013 (1♀). **World Distribution:** Holarctic.

Synema Simon, 1864

Synema globosum (Fabricius, 1775)

Material examined: Bor, Akbaş village (37°56'37"N, 34°25'51"E), 1147m, 23.VII.2012 (1♀); 10.V.2013 (1♀); 07.VI.2013 (1♀). Bor, Okçu village (37°56'33"N, 34°32'07"E), 1417m, 26.VII.2012 (2♀); 08.VI.2013 (1♀). Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 09.VI.2013 (1♀). **World Distribution:** Palaearctic.

Thomisus Walckenaer, 1805

Thomisus onustus Walckenaer, 1805

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (1♀); 28.VIII.2012 (1♂3♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 24.VII.2012 (1♂5♀); 30.VIII.2012 (2♂1♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 23.VII.2012; 29.VIII.2012 (1♂1♀); 07.VI.2013 (3♂5♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (2♂1♀); 07.VI.2013 (1♂1♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 25.VII.2012 (3♂2♀); 28.VIII.2012 (2♂3♀); 09.VI.2013 (2♂1♀). **World Distribution:** Palaearctic.

Xysticus C.L. Koch, 1835

Xysticus abramovi Marusik & Logunov, 1995

Material examined: Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 01.XII.2012 (1♂). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 03.XII.2012 (1♂). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 04.XII.2012 (1♂). **World Distribution:** Turkey, Tajikistan.

Xysticus caperatus Simon, 1875

Material examined: Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 23.VII.2012 (1♀); 07.VI.2013 (1♂2♀). Yeşilburç village - Kırkbayır village (38°01'49"N, 34°39'52"E), 1486m, 23.VII.2012 (1♂3♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 25.VII.2012 (1♀); 28.VIII.2012 (1♂); 07.VI.2013 (2♂,1♀). Altunhisar - Çiftlik 1 (38°02'17"N, 34°22'30"E), 1601m, 26.VII.2012 (1♂1♀); 30.VIII.2012 (1♂1♀). Küçükköy civarı (37°59'56"N, 34°35'09"E), 1693m, 24.VII.2012 (1♂1♀); 09.VI.2013 (2♂1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 10.V.2013 (1♀); 07.VI.2013 (1♂2♀). Bor, Akbaş village - Balcı village (37°58'03"N, 34°26'55"E), 1357m, 23.VII.2012 (1♀); 12.V.2013 (1♂1♀); 10.VI.2013 (3♀). Bor, Balcı village

(37°58'25"N, 34°27'48"E), 1534m, 23.VII.2012 (1♀); 09.VI.2013 (2♂). **World Distribution:** Mediterranean, Russia.

Xysticus demirsoyi Demir, Topçu & Türkeş, 2006

Material examined: Melendiz 9 (38°06'00"N, 34°33'58"E), 2305m, 01.XII.2012 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (1♂1♀); 07.VI.2013 (2♂1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 24.VII.2012 (1♂1♀); 28.VIII.2012 (2♂1♀). Güresentepe 3 (38°06'23"N, 34°36'36"E), 2254m, 25.VII.2012 (1♂3♀); 29.VIII.2012 (1♂1♀). **World Distribution:** Turkey.

Xysticus edax (O.P.-Cambridge, 1872)

Material examined: Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 07.VI.2013 (1♀). **World Distribution:** Turkey, Israel.

Xysticus gallicus Simon, 1875

Material examined: Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 01.XII.2012 (1♀). **World Distribution:** Palaearctic.

Xysticus kaznakovi Utochkin, 1968

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 07.VI.2013 (1♂). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 23.VII.2012 (1♂); 08.VI.2013 (1♂). **World Distribution:** Macedonia to Central Asia.

Xysticus kempeleni Thorell, 1872

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 29.VIII.2012 (1♀). **World Distribution:** Europe to Central Asia.

Xysticus kochi Thorell, 1872

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 24.VII.2012 (1♀); 30.VIII.2012 (1♀). Melendiz 5 (38°07'45"N, 34°36'39"E), 2067m, 25.VII.2012 (1♀); 28.VIII.2012. Melendiz 6 (38°06'46"N, 34°35'45"E), 2111m, 25.VII.2012 (1♂); 29.VIII.2012 (1♀). Melendiz 7 (38°06'02"N, 34°35'01"E), 2260m, 26.VII.2012 (1♂); 28.VIII.2012 (1♀). **World Distribution:** Europe, Mediterranean to Central Asia.

Xysticus marusiki Ono & Martens, 2005

Material examined: Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 23.VII.2012 (1♂); 28.VIII.2012 (1♂). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 01.XII.2012 (2♀). **World Distribution:** Turkey, Iran.

Xysticus ninnii Thorell, 1872

Material examined: Melendiz 1 (38°08'20"N, 34°27'11"E), 1630m, 23.VII.2012 (1♂2♀). Melendiz 2 (38°07'59"N, 34°26'32"E), 1806m, 24.VII.2012 (1♂2♀). Çiftlik (38°09'29"N, 34°28'15"E), 1560m, 25.VII.2012 (1♂3♀). Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (1♂2♀). Murtaza dam 2 (38°09'12"N, 34°34'54"E), 1857m, 25.VII.2012 (2♂2♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 23.VII.2012 (3♂2♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 26.VII.2012 (4♂). **World Distribution:** Palaearctic.

Xysticus pseudorectilineus (Wunderlich, 1995)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (3♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♂1♀); 19.IV.2013 (1♀); 10.V.2013 (1♀); 07.VI.2013 (1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 24.VII.2012 (1♀); 29.VIII.2012 (1♀); 03.XII.2012 (1♂); 19.IV.2013 (1♀); 12.V.2013 (1♀); 08.VI.2013 (1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 25.VII.2012 (1♀); 29.VIII.2012 (1♀); 02.XII.2012 (2♂). Güresentepe 1

(38°06'19"N, 34°37'04"E), 2157m, 25.VII.2012 (1♀); 28.VIII.2012 (2♀); 01.XII.2012 (1♂); 07.VI.2013 (1♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 23.VII.2012 (1♀); 30.VIII.2012 (1♀); 04.XII.2012 (1♂2♀). Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 10.VI.2013 (1♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 25.VII.2012 (3♀); 29.VIII.2012 (1♂); 01.XII.2012 (1♀); 09.VI.2013 (4♀). Yeşilburç village - Kırkbayır village 1 (38°01'49"N, 34°39'52"E), 1486m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀); 03.XII.2012 (1♀); 08.VI.2013 (1♀). Yeşilburç village - Kırkbayır village 2 (38°02'03"N, 34°39'45"E), 1491m, 25.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 07.VI.2013 (1♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 26.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 26.VII.2012 (1♀); 28.VIII.2012 (1♀); 03.XII.2012 (1♂); 07.VI.2013 (1♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♀); 07.VI.2013 (3♀). Yeşilburç village (38°01'06"N, 34°39'59"E), 1418m, 25.VII.2012 (1♀); 29.VIII.2012 (1♀); 01.XII.2012 (1♀); 07.VI.2013 (1♀). Koyunlu town (37°59'25"N, 34°35'34"E), 1567m, 24.VII.2012 (1♀); 28.VIII.2012 (1♀); 01.XII.2012 (1♂1♀); 08.VI.2013 (1♀). Karanlıkdere village (37°59'42"N, 34°25'29"E), 1426m, 26.VII.2012 (4♀); 29.VIII.2012 (2♀). Yeşilyurt village (37°59'01"N, 34°23'40"E), 1228m, 26.VII.2012 (1♀); 30.VIII.2012 (3♀); 01.XII.2012 (2♂); 08.VI.2013 (2♀). Bor, Okçu village - Fesleğen village (37°57'49"N, 34°33'22"E), 1452m, 25.VII.2012 (1♀); 28.VIII.2012 (3♀); 01.XII.2012 (1♂1♀); 09.VI.2013 (1♀). Bor, Fesleğen village (37°59'32"N, 34°33'21"E), 1661m, 26.VII.2012 (1♀); 29.VIII.2012 (1♀); 01.XII.2012 (1♂); 19.IV.2013 (1♀); 10.V.2013 (1♀); 07.VI.2013 (1♀). **World Distribution:** Turkey, Greece.

Xysticus striatipes L. Koch, 1870

Material examined: Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 01.XII.2012 (1♀). Yeşilburç village - Kırkbayır village 1 (38°01'49"N, 34°39'52"E), 1486m, 24.VII.2012 (1♀); 29.VIII.2012 (1♀); 01.XII.2012 (1♀); 01.XII.2012 (1♀). Yeşilburç village - Kırkbayır village 2 (38°02'03"N, 34°39'45"E), 1491m, 30.VIII.2012 (1♂1♀); 01.XII.2012 (1♀). Kırkbayır village, girişi 2 (38°02'24"N, 34°38'54"E), 1633m, 02.XII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E), 1702m, 04.XII.2012 (1♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 03.XII.2012 (1♀). **World Distribution:** Palaearctic.

Xysticus thessalicus Simon, 1916

Material examined: Murtaza dam 1 (38°08'27"N, 34°34'38"E), 1895m, 23.VII.2012 (2♀). **World Distribution:** Balkans, Turkey, Greece, Israel.

Xysticus tristrami (O.P.-Cambridge, 1872)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (2♀);07.VI.2013 (1♀). Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 24.VII.2012 (3♀); 09.VI.2013 (1♀). Güresentepe 1 (38°06'19"N, 34°37'04"E), 2157m, 01.XII.2012 (3♀). Güresentepe 2 (38°06'20"N, 34°36'51"E), 2209m, 03.XII.2012 (2♀). **World Distribution:** Saudi Arabia to Central Asia.

Family **Titanoecidae** Lehtinen, 1967

Nurscia Simon, 1874

Nurscia albomaculata (Lucas, 1846)

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (3♀); 28.VIII.2012 (1♂1♀); Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 24.VII.2012 (3♀); 28.VIII.2012 (1♀). Altunhisar - Çiftlik 3 (38°07'25"N, 34°26'47"E), 1811m, 25.VII.2012 (6♀); 29.VIII.2012 (1♂2♀). Tepeköy 2 (38°04'52"N, 34°37'45"E), 1779m, 26.VII.2012 (1♂1♀); 28.VIII.2012 (2♂). Yeşilburç village - Kırkbayır village 1 (38°01'49"N, 34°39'52"E), 1486m, 25.VII.2012 (3♀); 28.VIII.2012 (4♀). Yeşilburç village - Kırkbayır village 2 (38°02'03"N, 34°39'45"E), 1491m, 23.VII.2012 (3♀); 30.VIII.2012 (5♀). Kırkbayır village 2 (38°02'24"N, 34°38'54"E), 1633m, 26.VII.2012 (3♀); 29.VIII.2012 (1♀). Gebere (38°02'45"N, 34°38'20"E),

1702m, 23.VII.2012 (6♀); 30.VIII.2012 (1♀). **World Distribution:** Europe, Egypt to Central Asia.

Titanoeca Thorell, 1870

Titanoeca quadriguttata (Hahn, 1833)

Material examined: Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 23.VII.2012 (3♀); 28.VIII.2012 (1♀). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 29.VIII.2012 (3♀). **World Distribution:** Palaearctic.

Titanoeca schineri L. Koch, 1872

Material examined: Gebere (38°02'45"N, 34°38'20"E), 1702m, 23.VII.2012 (1♂2♀); 28.VIII.2012 (3♀). Gebere dam 1 (38°03'03"N, 34°38'05"E), 1700m, 24.VII.2012 (1♂1♀); 29.VIII.2012 (2♂). Gebere dam 2 (38°02'58"N, 34°37'57"E), 1719m, 23.VII.2012 (1♂); 30.VIII.2012 (3♀). **World Distribution:** Palaearctic.

Family **Zodariidae** Thorell, 1881

Zodarion Walckenaer, 1826

Zodarion thoni Nosek, 1905

Material examined: Bor, Balcı plateau (37°58'28"N, 34°27'58"E), 1600m, 23.VII.2012 (2♂1♀); 28.VIII.2012 (1♂3♀); 01.XII.2012; Altunhisar (38°00'39"N, 34°21'44"E), 1252m, 25.VII.2012 (1♀); 29.VIII.2012 (1♂1♀); Tepeköy 1 (38°04'53"N, 34°37'47"E), 1774m, 26.VII.2012 (2♂1♀). **World Distribution:** Eastern Europe to Azerbaijan.

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